

# MANUFACTURERS' RECORD

A WEEKLY SOUTHERN INDUSTRIAL  
RAILROAD AND FINANCIAL NEWSPAPER.

The factories of the South, where judiciously located and conducted in a business-like way, are paying larger profits than the factories of any section of the civilized world.

The South suffers less from strikes and labor troubles than any other industrial region.

There are more opportunities open and waiting for active, industrious young men in the South than anywhere else in the world.

The fact that the recent low price of cotton did not precipitate universal bankruptcy in the South proves that the South's financial condition is stable beyond disturbance.

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Baltimore, July 15, 1892.





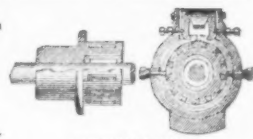
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## THE JAMES SMITH WOOLEN MACHINERY CO.

WOOLEN MACHINERY AND CARD CLOTHING OF EVERY DESCRIPTION.  
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MANUFACTURERS AND SOLE PROPRIETORS OF THE PATENTS, APPLICATIONS AND DESIGNS UNDER WHICH THE BROWN HOISTING AND CONVEYING APPARATUS AND VARIOUS TRAMWAYS FOR IT ARE BUILT.

NEW AND COMPLETE LABOR-SAVING SYSTEMS FOR HANDLING OF MATERIALS OF ALL KINDS.

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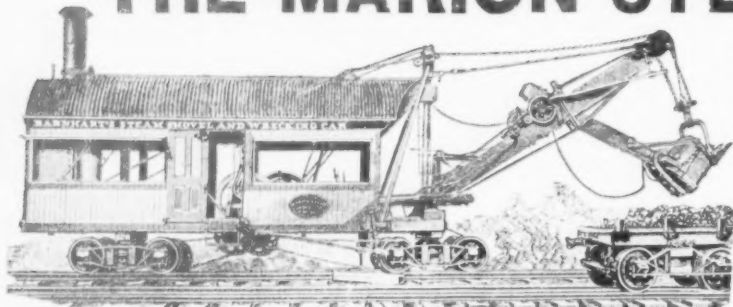
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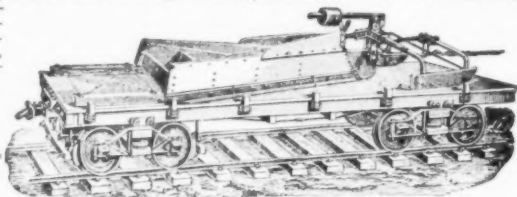


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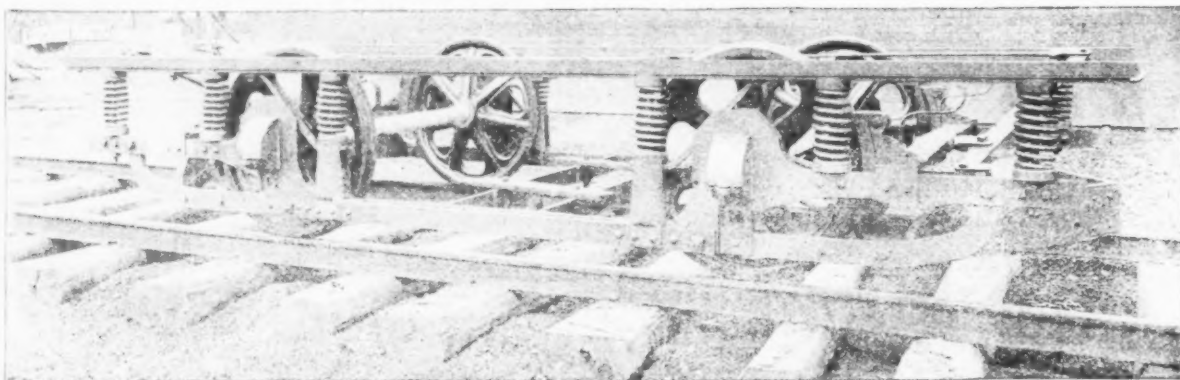
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## CLASSIFIED INDEX OF ADVERTISERS.

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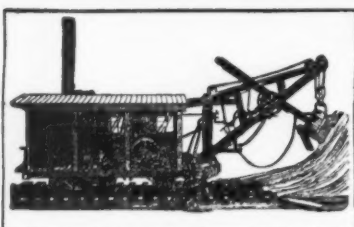
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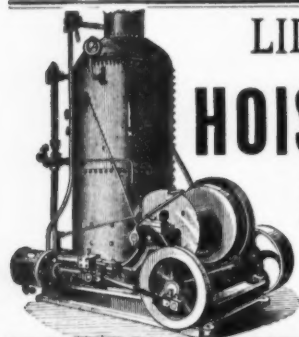


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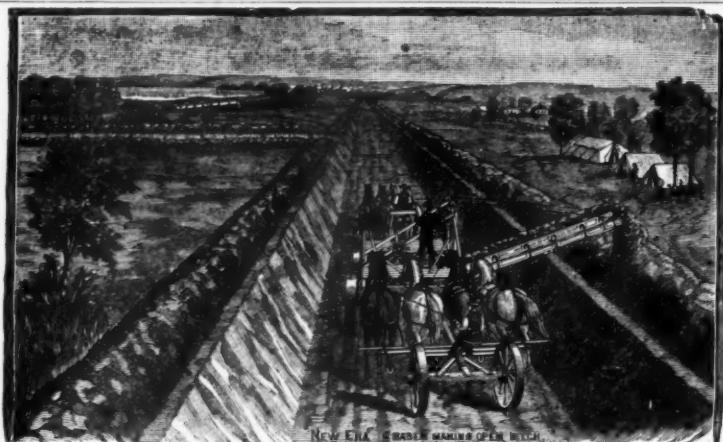
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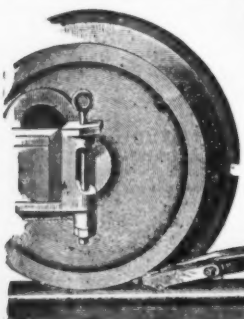
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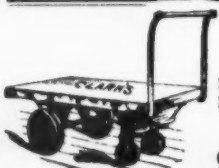
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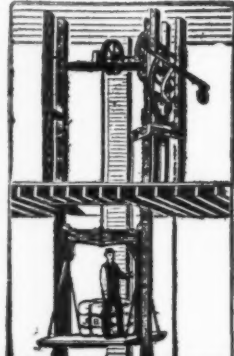
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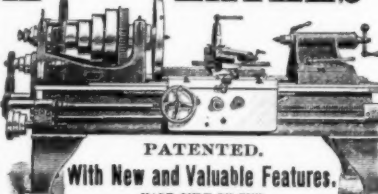
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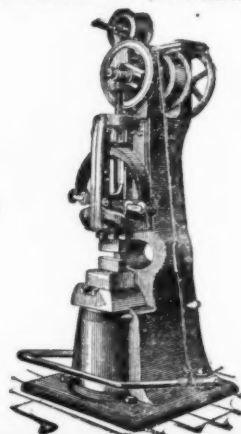
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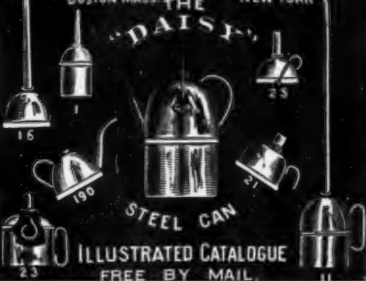
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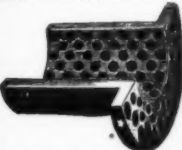
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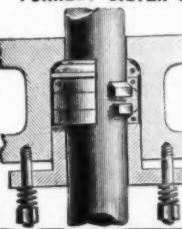
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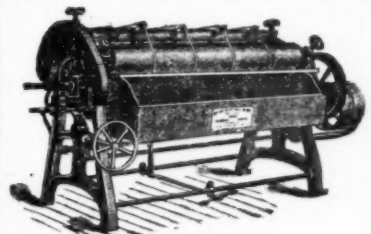
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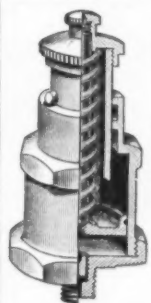
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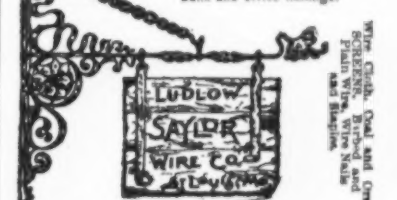
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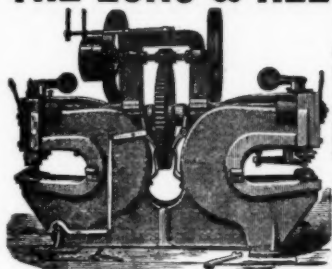
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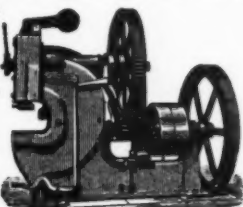
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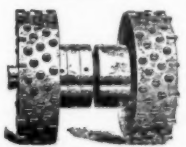


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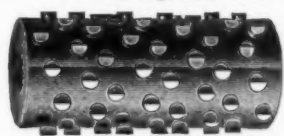
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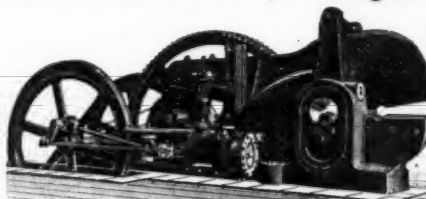
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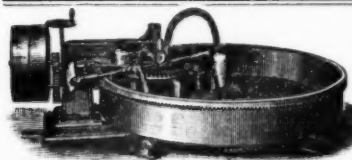
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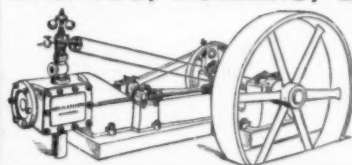
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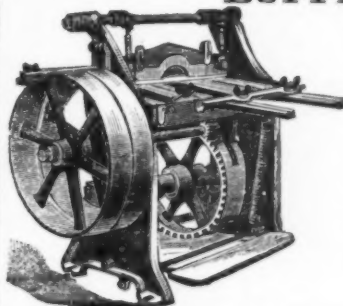
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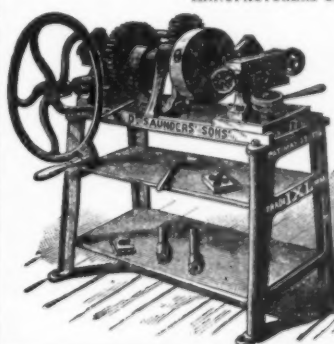
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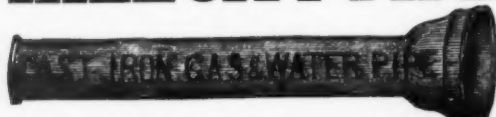
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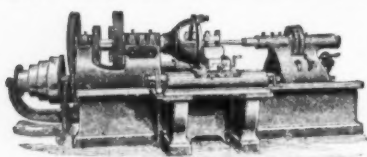
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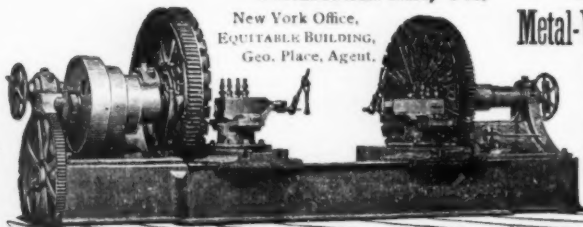
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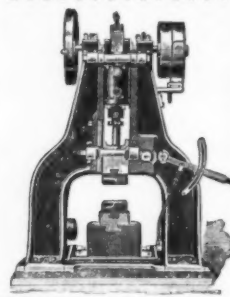
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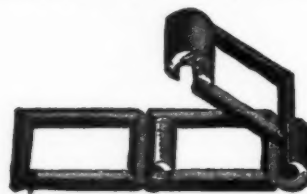
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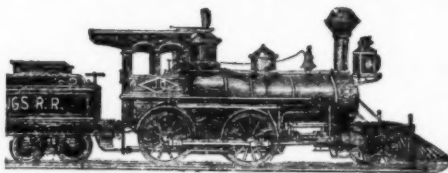
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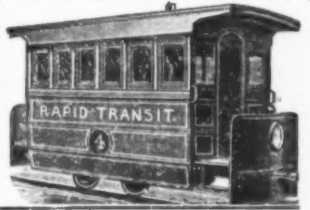
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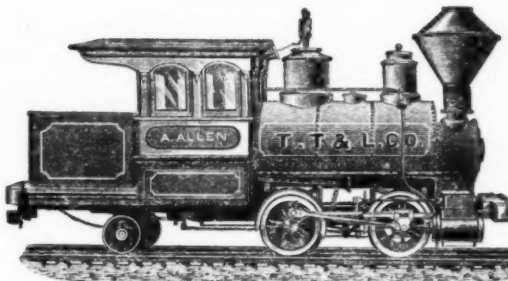
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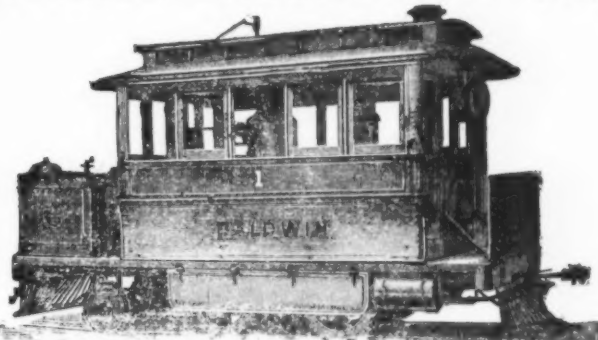
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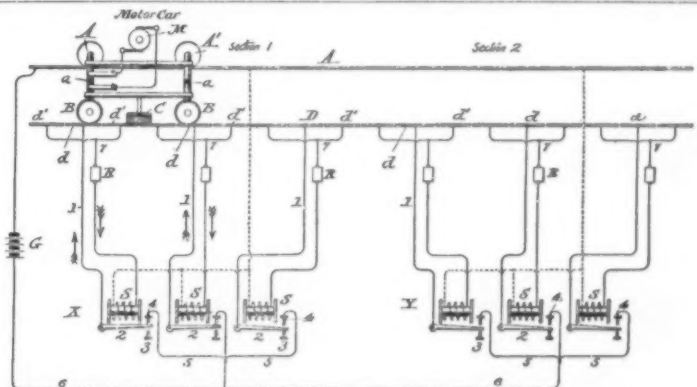
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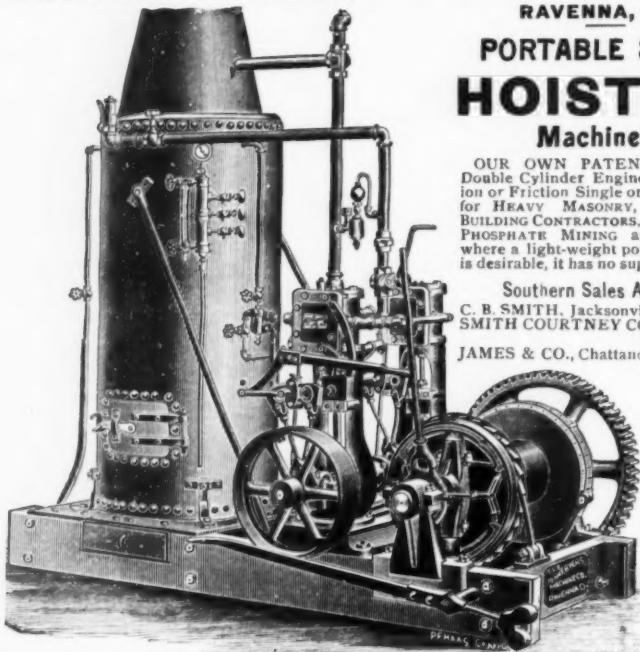
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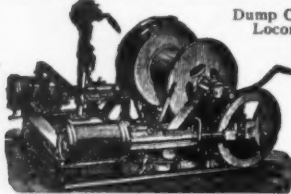
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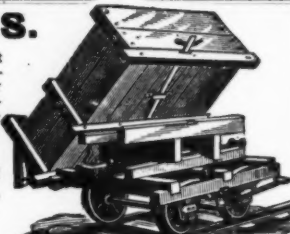
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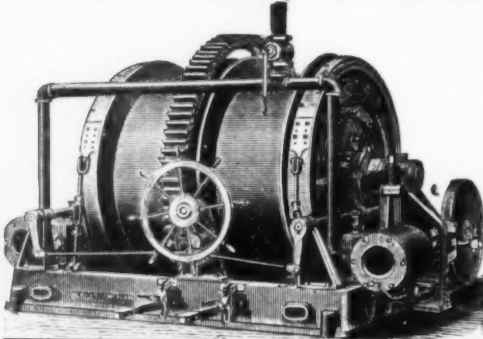
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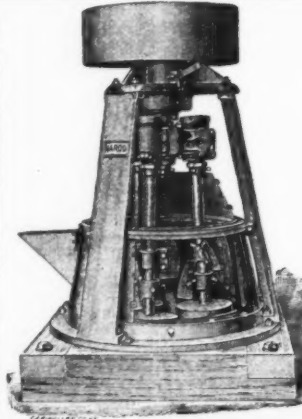
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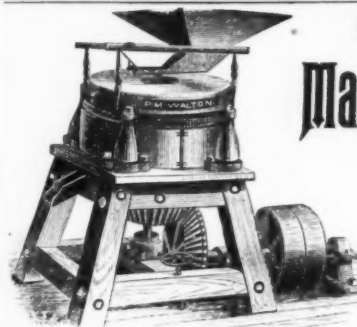
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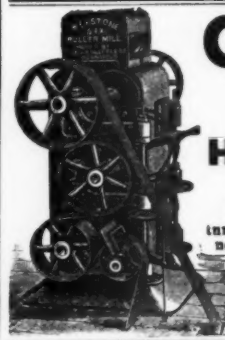


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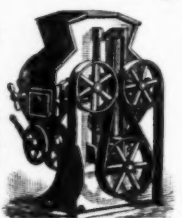
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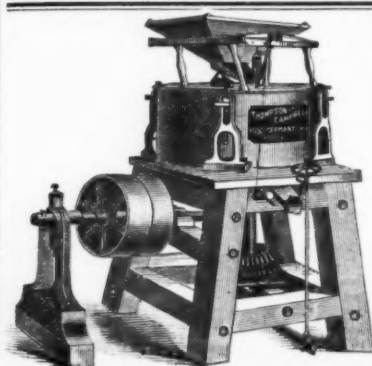


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For Grinding Wheat, Corn, Oats and all kinds of Minerals.

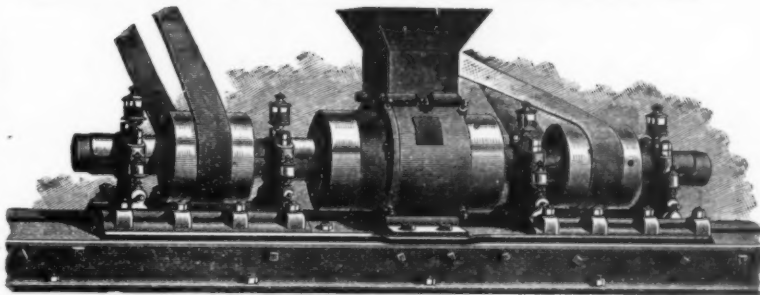


With our Patent Stands, Balance Ryne and Gearing put on in our improved style. These Mills are furnished with Shoe or Silent Feeder, as preferred. The Stones are of the very best selected French Burr Old Stock Blocks or solid New Stock, whichever may be best for the material to be ground. The Mill is built in the most substantial manner.



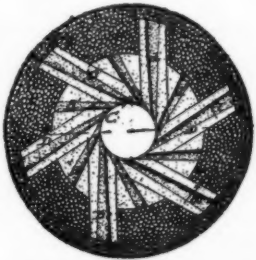
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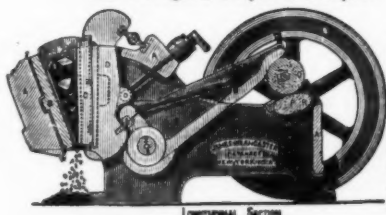
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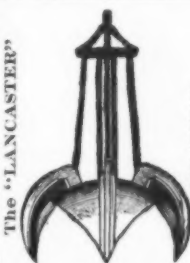
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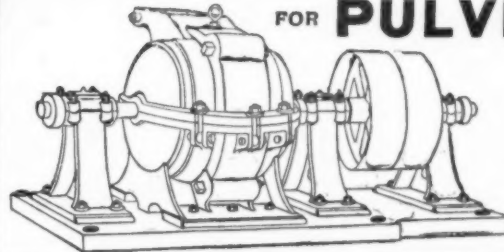


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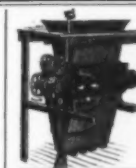
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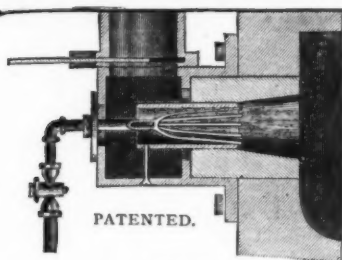


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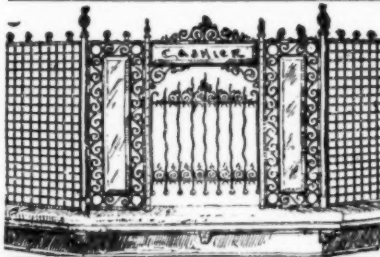
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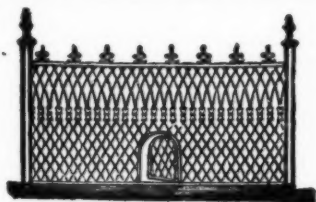
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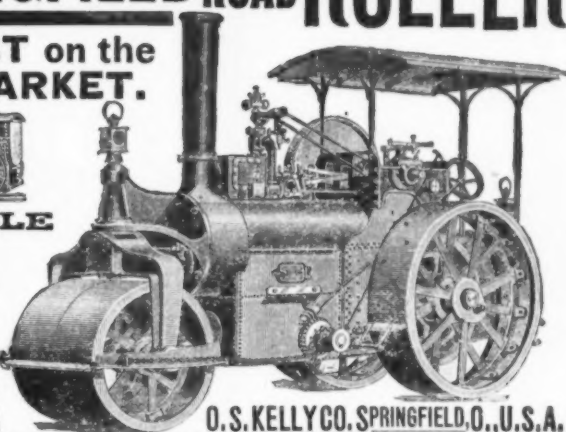
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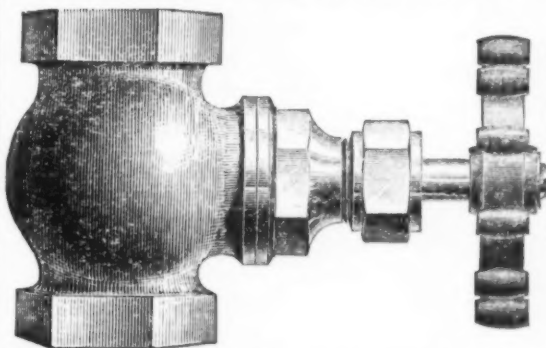
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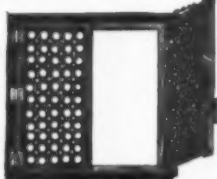
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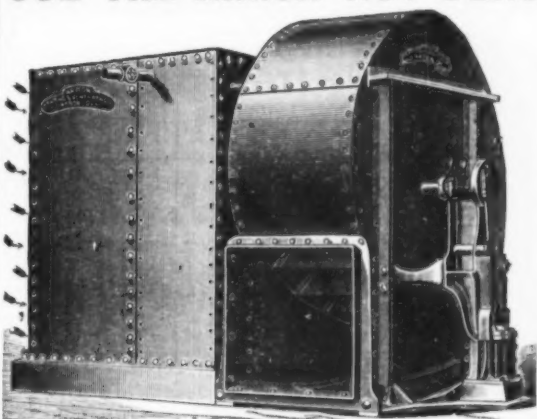
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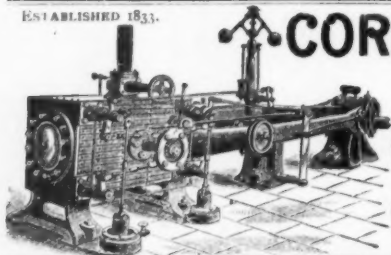


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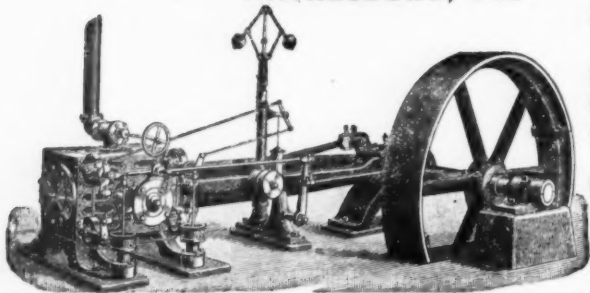
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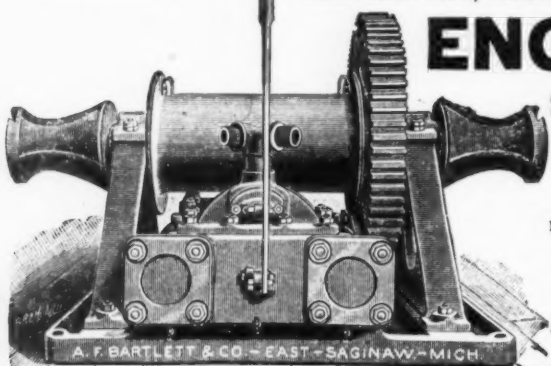
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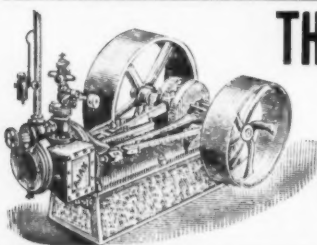
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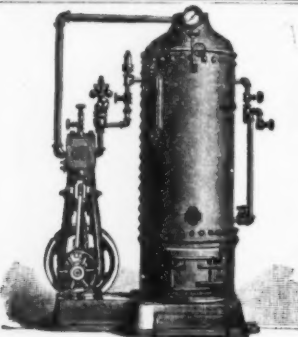
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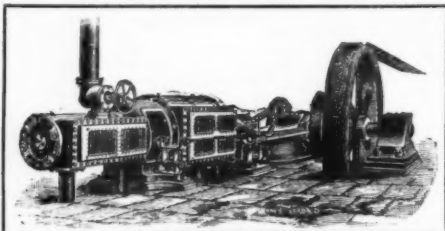
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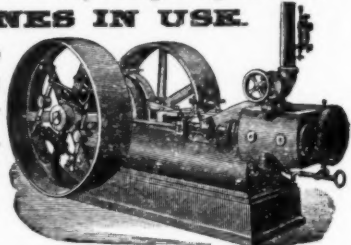
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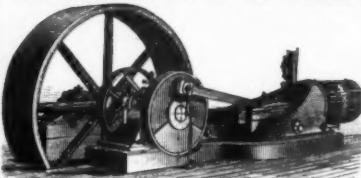
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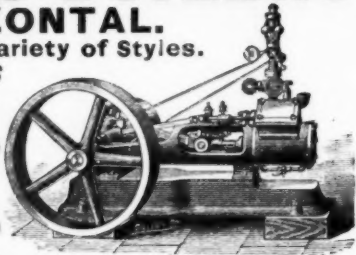
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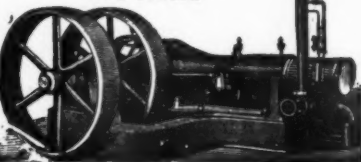
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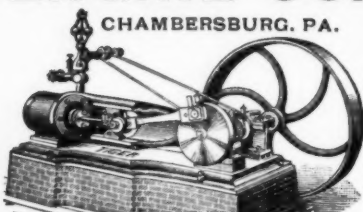
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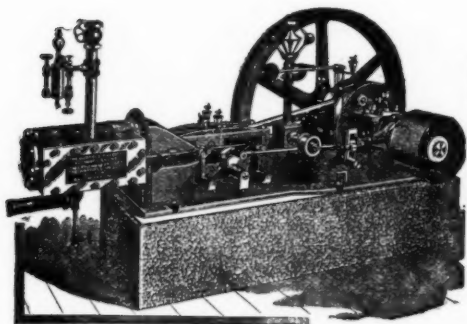
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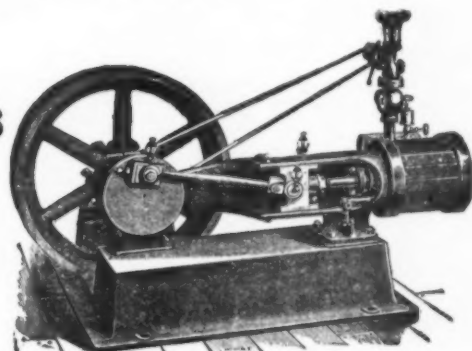


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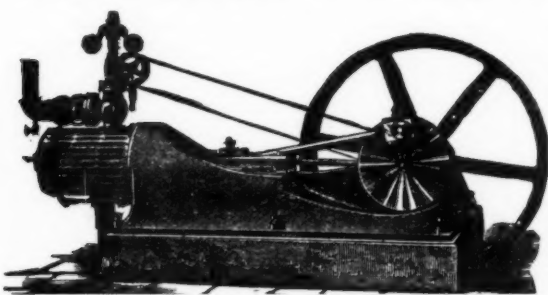
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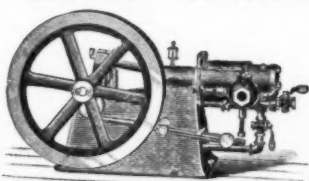
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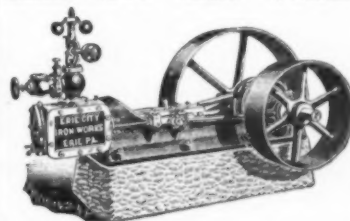
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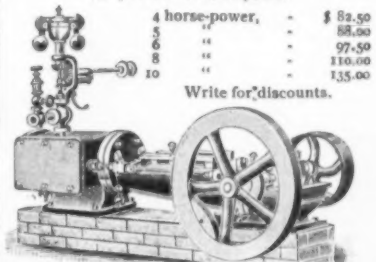
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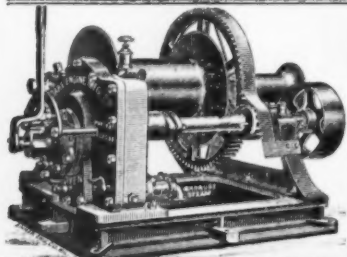
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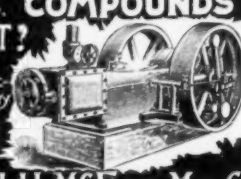
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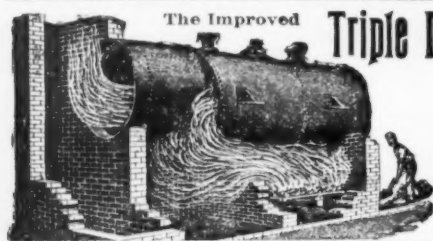
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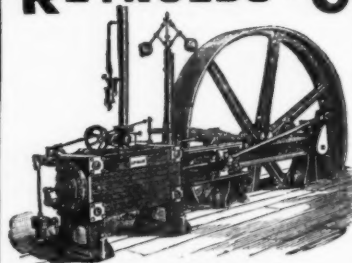
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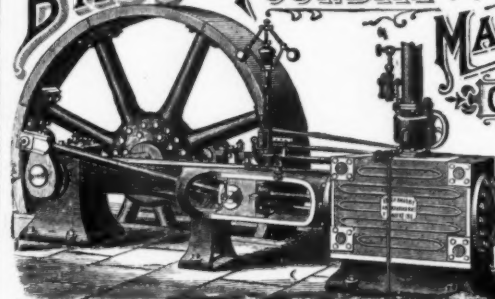
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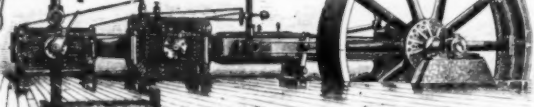
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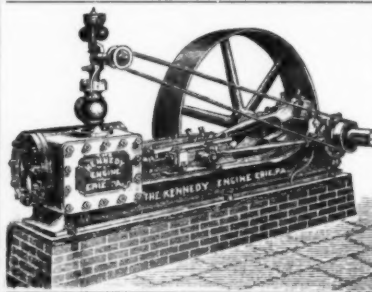


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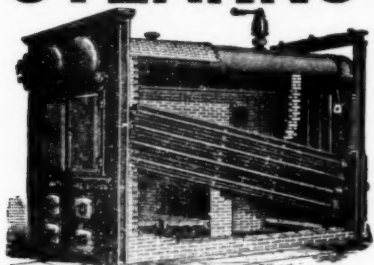
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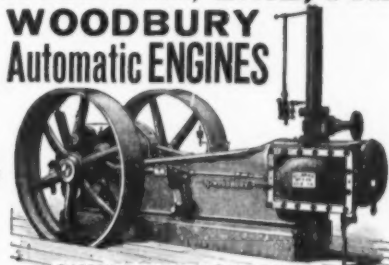
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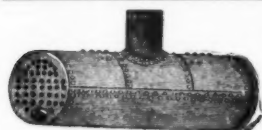
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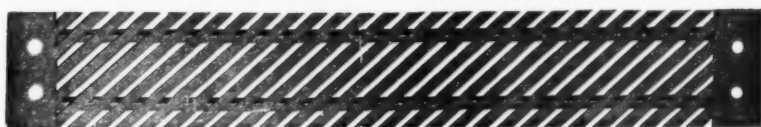
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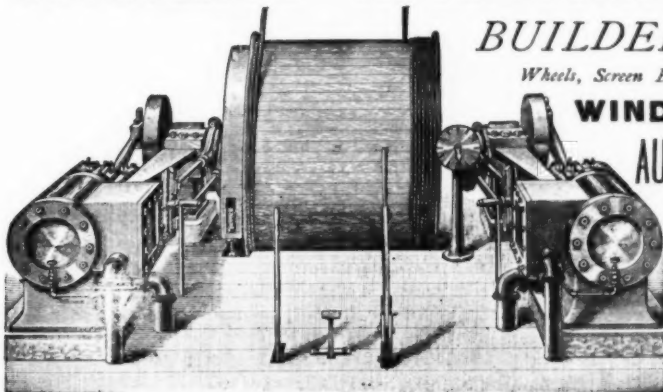
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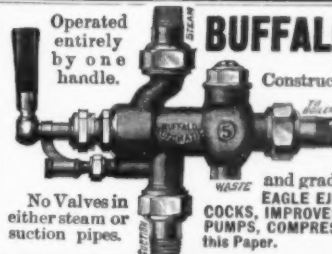
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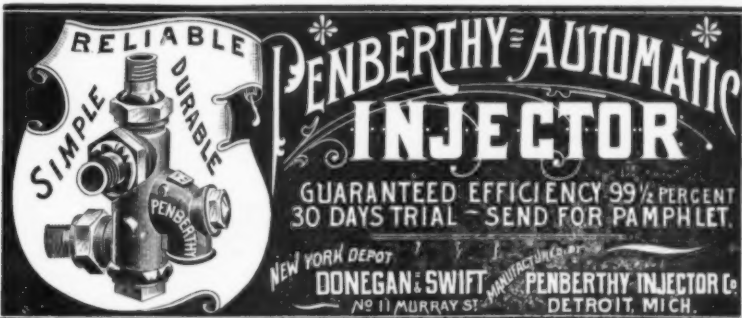
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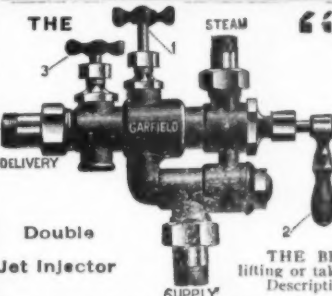
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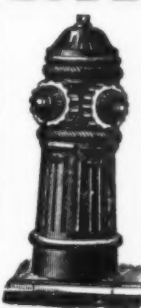
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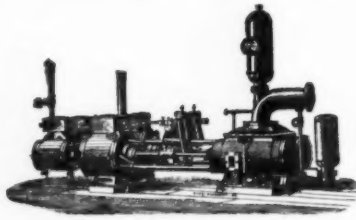


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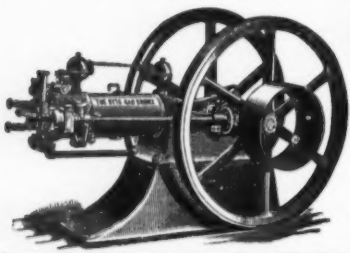
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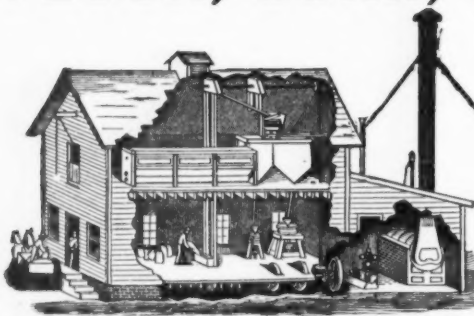
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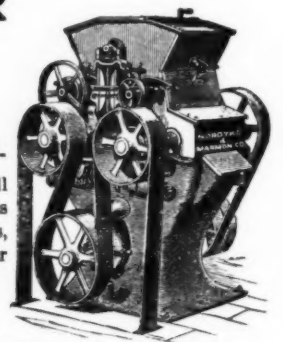


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VOL. XXI. No. 21.  
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BALTIMORE, JULY 15, 1892.

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## Why Cotton Ties Should Be Made in the South.

There is one branch of the iron industry which the South should entirely control, and that is the manufacture of cotton ties. Strange as it may appear, the South has heretofore depended almost entirely for its supply of this article upon rolling mills in the Northern and Western States and in foreign countries. In the last few years, however, one or two rolling mills have been built in the South which are equipped for the manufacture of cotton ties, but their combined capacity is not equal to more than 4 or 5 per cent. of the quantity necessary to bale each year's cotton crop.

There certainly exists no good reason why the South should not engage extensively in the manufacture of cotton ties; in fact, there is no reason why the entire demand for this article, which is so indispensable to the Southern cotton planter, should not be supplied by rolling mills within its own borders. It should not be necessary for the growers of cotton either to go or send 300 or 400 miles for what could just as easily be made at their own doors. There is no secret connected with the manufacture of cotton ties; no extraordinary skill is required in their production; the amount of capital necessary to embark in the business is not by any means large, and it would not be necessary for the South to import from other sections of our own country or from foreign countries the materials from which they are manufactured, for it has them in abundance within its own borders. The ties can be made of either iron or steel, and the simple device at the end by which they are secured firmly around the bale of cotton, like the tie itself, is very easily manufactured.

Previous to 1890 the production of cotton ties by American works was very irregular, much the larger part of the quantity consumed being imported from England, a single establishment in that country annually exporting in the last few years about 15,000 gross tons to the United States alone. Since 1890, however, American rolling mills have commenced their manufacture in earnest, and are now able to supply the entire demand of the home market, the total imports (including hoops) having amounted to only 186 gross tons in 1891.

No statistics of the production of cotton ties in this country have ever been published, but from 1884 to 1890 the average annual production in the United States did not exceed 12,000 net tons, foreign countries supplying the cotton planters of the South with the bulk of the quantity necessary to bale each year's crop. As the United States is the great cotton producer of the world, supplying about two-thirds of the world's consumption of this valuable product, it will be interesting to ascertain just what has been the approximate consumption of cotton ties for baling purposes in this country in the last few years. In the following table will be found the cotton crop since 1884 (in bales of 440 pounds); the quantity of ties necessary to bale each year's crop, allowing six ties to the bale, the six ties weighing ten pounds; the quantity of ties imported in each year;

and the approximate quantity of ties produced each year in American iron and steel works. Previous to 1884 our importations of cotton ties were not separated from "other manufactures of iron and steel" by the government officials, and therefore the quantity imported prior to that date cannot be ascertained. It may be here remarked that cotton ties, both of foreign and domestic make, are usually eleven feet in length, one inch wide, and are put up in bundles of fifty pounds each, thirty pieces and buckles constituting a bundle. As six ties are required for each bale of cotton, a bundle will tie five bales. The table we have compiled is as follows:

Years.	Cotton. Bales produced	Ties required Net tons.	Ties imported Net tons.	Approx. American tie production. Net tons.
1884....	5,714,052	28,570	17,518	11,052
1885....	5,699,021	28,495	20,576	7,919
1886....	6,550,215	32,751	11,561	20,190
1887....	6,513,624	32,568	24,376	8,292
1888....	7,017,707	35,089	33,942	1,147
1889....	6,935,482	34,675	23,313	11,362
1890....	7,313,726	36,569	16,912	19,657
1891....	8,655,518	43,278	208	43,070

It will be seen that, excluding 1891, we imported about two-thirds of the quantity of ties necessary to bale the cotton grown in this country in the last seven years, our rolling mills supplying only about one-third of the demand. Of the quantity manufactured in this country in these seven years but a small amount, if any, was rolled in Southern mills. In 1891, however, the single rolling mill in the State of Georgia commenced to manufacture cotton ties of a good quality, and it has since been actively engaged in their production. Texas, too, has been quick to appreciate the many advantages to be derived by building up a cotton-tie industry within its borders, and as a consequence three of its four rolling mills are now prepared to make them or are erecting the necessary machinery to engage in the business. Two or three enterprises for their manufacture are also projected in Alabama, and at the close of the present year that State will probably have several establishments equipped for the purpose.

The information concerning the prices of cotton ties in this country for the years given in the table is very meagre. The average price at Pittsburg, Pa., for American ties per bundle in 1889 was \$1.18, in 1890 it was \$1.16½, and in 1891 it was \$1.09¾. In the latter part of May of the present year American ties were selling at New York at \$1 per bundle delivered at Southern points. This is said to have been the lowest price on record. The average prices at St. Louis (whether of American or foreign manufacture not being stated) was \$1.16¼ in 1887, \$1.19 in 1888, \$1.16¼ in 1889, \$1.32½ in 1890, \$1.25 in 1891, and \$1.15 in February of the present year. The average price of foreign ties at New Orleans and Galveston in 1889 and 1890 was somewhat lower than the average price of American ties at Pittsburg, but in 1891 it was higher.

There are thirteen rolling mills in the United States which are now making or are prepared to make cotton ties, and two additional mills are being built. Of the thirteen completed works eight are in Pennsylvania, three are in Ohio, one is in

Georgia, and one is in Texas. The two building works are in Texas.

This is not a very encouraging showing for the South, nor is it a very creditable one. The manufacture of cotton ties should be one of the most flourishing of Southern industries. Hundreds of thousands of dollars (the South paid over \$1,700,000 for cotton ties in 1891) could be saved annually by the planters in freight charges, etc., if the supply of ties were furnished from Southern mills, to say nothing of the impetus that would be given to the iron trade of that section and the large number of skilled workmen that would be given employment.

There would seem to be a special field for the successful investment of capital in the manufacture of this Southern necessity. The South has made almost marvelous progress in the manufacture of pig iron in the last few years, but in doing this the establishment of enterprises for the manipulation of the raw iron into finished products has, to a certain extent, been neglected. Now that the manufacture of the raw material (pig iron) has been so successfully established, more attention should be given to the production of finished materials. A home market should be built up for the sale of the pig iron produced in the South instead of sending so much of it hundreds of miles away to find a purchaser. So far as cotton ties are concerned it should be the policy of the South to manufacture as large a part as possible of the quantity which it must have from iron bars rolled in Southern mills, these bars being made from Southern pig iron which had been produced from Southern iron ore smelted with Southern coke.

## The Production of High-Silicon Iron.

The continuous production in a blast furnace of an iron high in silicon and necessarily low in the other elements which go to make pig iron is a matter in which many difficulties and no little extra expense are encountered. Besides the additional care required in watching and controlling the furnace, it is necessary that the material be well prepared and selected and that the utmost regularity be obtained in the operation. Such iron sells for a higher price than ordinary grades, its value varying with the percentage of silicon contained in it, and this should be sufficient to more than offset the additional cost of manufacture; but the consumption of such a product is comparatively limited, and, therefore, the market would be easily overstocked and prices forced down. Furnaces, however, which have suitable ores and fuel can work on high-silicon iron for two or three months and then change to their regular foundry product, coming back to the high-silicon when there is a sufficient demand to justify them in making a large quantity. In this way, with proper care they can establish a reputation for ferro-silicon, and gradually enlarge their market for it and also increase their earnings to a certain extent.

In order to make high-silicon iron, or ferro-silicon, as it is generally termed, the first requisite is that the ores, limestone and fuel be free from sulphur and manganese and contain as little phosphorus as is

practicable, certainly not over 0.50 in the pig iron. In the South either the washed brown hematites or red fossil ores can be advantageously used, but it is necessary that they be carefully selected so as to be free from lumps of chert or slate. The same may be said of the coke, which should be free from slate, though not necessarily very low in ash, and it is desirable that this ash should be largely made up of silica. The reason for this is that it has never yet been determined whether silicon is reduced from the silica in the ores or from that in the coke, but it has been noticed that cokes containing low ash with only a small proportion of silica rarely produce as high silicon in the iron as those with larger proportions.

As an instance, Pocahontas coke, which contains not above 9 per cent. ash on an average, of which only about 40 per cent. is silica, does not make irons as high in silicon as the cokes of the Birmingham district, which contain from 15 to 20 per cent. ash, of which from 60 to 75 per cent. is silica. Connellsville coke, averaging 13 per cent. ash, of about 70 per cent. silica, makes a good high or low-silicon iron, depending upon the manner in which it is worked, and anthracite coal, which is both low in ash and silica, makes nearly always a low-silicon iron, though occasionally, from irregular furnace work, irons containing as much as 5 per cent. silicon have been produced. As a rule, however, it has been noticed that a large proportion of silica in the ash facilitates the production of high silicon iron, and the explanation is that the silica in the coke is more exposed to reducing influences and less to contact with the strong bases of the slag, and therefore carries its silicon into the metal bath in the hearth, where it is largely taken up by the iron. Indeed, all observations tend to confirm this theory, and it is therefore desirable that the ash of the coke should contain a large proportion of silica.

The actual work of reduction in the furnace is naturally an important feature, as unless this is done properly no amount of care in the selection of ores or coke will accomplish the results. When a mixture of ores is used it should be so calculated from the character of each ore that all kinds will be thoroughly reduced before reaching the zone of fusion. In this and other matters pertaining to the actual furnace work the details vary but little from those ordinarily in use in producing foundry irons, but far more care and attention is necessary and simply must be given if the results are to be successful.

To produce an iron high in silicon it is of course necessary that the reduction and fusion of the ore take place higher up in the furnace than when making a foundry or forge iron, and consequently that a larger proportion of coke per ton of iron is required in order that there may be enough live fuel in the hearth to keep the bath at a high temperature. When a furnace burdened for and working on foundry irons makes a change to a hot iron, either bright or silvery, it is noticed that the cinder appears to be more basic, and that the hearth and sides of the furnace build up and the iron itself becomes sluggish and does not separate well from the cinder. This is owing to the fact that the consump-



tion of coke is so great in the upper part of the zone of fusion that there is not sufficient left in the hearth, and this, with the large volume of air going in, keeps the hearth at a lower temperature than the iron coming into it, and therefore a large proportion of the heat of the latter is absorbed, leaving it, as stated, somewhat sluggish. When a furnace is properly burdened for the production of ferro-silicon this sluggishness and tendency to build up in the hearth are never observed, the iron running fluid and the hearth keeping clean, but in order to have it this way the cinder must be neither too acid nor too basic, as in the former case the cutting action on the sides is very strong, greater even than the cinder from a mottled iron, and in the latter the cinder is less fusible, and consequently becomes sticky and refuses to separate well, besides rapidly building up both bottom and sides of the hearth.

A good cinder for this kind of work is one containing silica 34.0, lime 49.0, alumina 12.0, but if from the character of the ores used a higher percentage of alumina is unavoidable, the lime should be reduced and silica slightly increased, though it should not in any case exceed 37 and preferably not over 35 per cent. A cinder of this kind will appear to be siliceous in the test sample, but the manager must be guided entirely by analyses and make such changes as are necessary upon the basis of calculation from them not by guess work. So much depends upon the composition of the cinder that too great care cannot be taken to keep it both regular in composition and as near to the figures given as possible.

The heat of the blast entering the furnace should be kept at about 1,200°, though it is well to have the stoves carrying 1,500°, as the additional 300° are useful if the cinder shows any signs of getting colder. Of course, to reduce it a small current of air from the cold-blast pipe is passed into the hot blast near the stoves. This and the use of the engines in regulating the furnace are the same as in making any other grade of iron, though particular care must be taken not to reduce either the heat or amount of blast too suddenly, or the change in the furnace will be much more marked than calculated on. Water must be used in only small quantities around the hearth unless there is an indication of a possible break-out, but a good stream may be kept on the hosh walls, as the service required of them is very severe, and they are likely to cut out rapidly unless protected. As a rule little trouble will be experienced from either the tuyeres or cinder and iron notches, but occasionally some of the difficulties common to the production of all kinds of iron will come on and must be treated in the usual manner.

At times the iron notch will tend to cut out and make the furnace cast itself, but this can be remedied by the judicious mixture of a little strong fire-clay, to which is added 10 per cent. lime with the clay ordinarily used for stopping the notch. Before flushing the cinder it should be allowed to accumulate in considerable quantity unless a monkey is used in the notch, as all changes of speed in the engines, and particularly stops, should be avoided as much as possible. This is very important, as the manager will soon find out. After a stop of ten minutes the furnace will often completely change, and cannot be brought back for a day or more. This is one great difficulty, as there are times, such as removing a tuyere, stopping the notch, or in case of breakdowns, when a longer stop than ten minutes must be made, and serious trouble may be expected upon starting up. If a stop is to be made for over ten minutes, it is well to immediately close all tuyeres with clay so as not to allow air to enter the furnace.

The gas is not, as might be supposed,

smoky or thin; on the contrary, it is generally strong and in abundance, beyond the needs of boilers and stoves. When working a foundry burden, if the heat ascends too high in the furnace and a hot or high-silicon iron is produced, it is well known that the gas increases in volume, but burns smoky and thin, producing little heat, but from a ferro-silicon burden it is otherwise.

In speaking of a ferro silicon it is generally understood that it is an iron containing 7 per cent. silicon or more. Irons produced under abnormal conditions from a foundry or mill burden sometimes have as high silicon as this, but are not true ferro silicon, nor do they answer the same purpose in the foundry. In order to make a ferro silicon which can be used successfully for foundry work, it is imperative that the burden of the furnace be proportioned for it, and furthermore, that every cast be kept to itself, analyzed and shipped with guaranteed silicon contents. The entire operation must be conducted with the utmost care and accuracy, otherwise it will prove a failure.

A great many Southern furnaces are particularly well situated for this work in having both coke and ore which are suitable and at a low cost. To make the iron requires more care and some additional expense, but if properly done the returns are much greater than those from foundry or mill irons.

#### Iron Ore Mines in Page County, Va.

The Crescent Iron Co., of Virginia, have in Page county, of that State, an excellent deposit of the fine brown hematite iron ore for which Virginia is noted. This property has been examined by McCreath & d'Invilleirs, T. C. Blair, Dr. Wm. Glenn, W. deL. Benedict, John Sprague and A. E. Jenkins, all of whom have stated that the deposit was one of considerable magnitude and excellent quality. The amount of ore is estimated at between 300,000 and 900,000 tons, not including other deposits on the same property. Analyses of the ore show from 45 to 53 per cent. metallic iron, 9 to 21 per cent. silica and 0.05 to 0.26 phosphorus. The average of five analyses with these extremes is: Iron, 51.17; silica, 12.47; phosphorus, 0.16, showing that it is of excellent quality. Mining work will be all done by open cuts, as the ore lies in loose clay and comes to within four feet of the surface of the ground. Shipments of ore have been made and \$2.00 per ton received for it f.o.b. cars, and it is thought that a force of sixty men can mine and deliver from 150 to 175 tons daily.

#### Augusta Mining Notes.

Six cars of ferro-manganese ore were shipped last Saturday from the Virginia Mining & Investment Co.'s Cotopaxi mines, bound for the Carnegie steel works at Pittsburgh. They are part of a lot of 250 tons now being delivered to Carnegie, Phipps & Co. This is the second lot sold to that firm. The first lot, about thirty tons, shipped to Pittsburgh in the spring, was found to be of excellent quality, and if this second lot proves as good the Carnegie firm will give an omnibus order for all the ferro-manganese ore the Virginia company can produce. It is expected that the second lot, being carefully washed, will prove better than the first, which was sent without washing. The ferro-manganese ore required for steel-making at the Carnegie works has been obtained heretofore from Spain, Greece, Russia, Cuba and the manganese mine at Crimora. The product of the Crimora mine, about 26,000 tons per year, was shipped to the Carnegie works up to the recent closing of the Crimora mine at the expiration of the operator's lease. It is probable that in time the Virginia company will produce all the ferro-

manganese ore used by the Carnegie firm. That the supply is limited may be inferred from the great distances over which it has heretofore been transported.—*Staunton News.*

#### Southern Iron Notes.

FRANK LYMAN, of Brooklyn, N. Y., who recently purchased the Covington (Va.) Furnace, intends to remodel and operate it in connection with the Dolly Ann, Iron Mountain and Stock iron mines, all of which he owns.

THE rolling mill of the Globe Iron Roofing & Corrugating Co., of Cincinnati, at Newport, Ky., will resume operations in about a week, after extensive repairs, in which was included the placing of a new mill.

THE Vanderbilt Steel & Iron Co. has shut down its furnace at Birmingham, Ala. The plant employs about 100 men. The reasons for closing are said to be the unsatisfactory demand for iron and the stringency of money.

MESSRS. A. COLE AND TITUS HIBBERT are shipping about 500 tons of iron ore per month from the mines near Stuart's Draft Va., which they have operated since April on a lease from the Virginia Mining & Investment Co.

THE Maryland Steel Co. has commenced the manufacture of steel billets at its Sparrow's Point plant. An Eastern concern will use these billets for manufacturing wire. They are rolled from the same train that is used in making rails, and whenever the demand for rails falls off, the plant's full force can be put on billets. The capacity of this plant is from 1,500 to 2,000 tons daily.

THE Tennessee Coal, Iron & Railroad Co. has filed an amendment to its original charter for the purpose of increasing its capital stock to \$18,000,000.

THE Talladega (Ala.) Furnace, the property of the Talladega Iron & Steel Co., was sold on July 4th by decree of chancery. Mr. Wm. P. Parrish, broker, of 35 Wall street, New York, was the purchaser, and he intends to reorganize the company and put the furnace in blast as soon as practicable.

#### Coal and Coke Notes.

THE shipments of coal and coke from the Pocahontas and Southwest Virginia coal fields over the Norfolk & Western Railroad amounted to 8,745 cars in the month of June. During July it is expected that much more will be shipped, as a large number of vessels and barges are at the Norfolk & Western coal wharves at Lambert's Point loading with coal.

It is said that the Booth-Bowen Coal & Coke Co. is preparing to erect additional coke ovens at Freemans, W. Va.

THE Keystone Coal & Coke Co., of Kyle, W. Va., has about completed its coal tippie, and will commence shipping in a week or two.

A REPORT is current at Savannah, Ga., that one of Alabama's largest coal mining concerns proposes to erect coal shutes on the river front at Savannah at a cost of about \$25,000. In competing with the coal now supplied from further north, the object is, of course, to eventually obtain entire control of the trade of the port.

THE Alabama Coal Co. will build 120 barges, which are to be used in towing Alabama coal from Greenville, Miss., to New Orleans. The coal comes from the mines 300 miles by rail.

THE Greeno-Bodine Coal Co., of Tacoma, Va., is opening several new veins of gas coal of good promise.

THE Empire Coal & Coke Co.'s plant at Landgraff, W. Va., is completed, and the company is about to commence shipping coal.

#### Condition of the Florida Phosphate Industry.

By John H. Jones.

The recent advance in the price of Florida phosphate rock has given renewed hope and spirit to the miners and continued exploitations in the State. The improvement in price has been sharp and decided. It is the outcome of a set of circumstances which have been working to an inevitable result, such result as was predicted by competent authorities months before its accomplishment. It may be of interest to look over the situation and effects back to the causes of the recent low prices and the present advance.

The beginning of 1891 found the price of 75 per cent. hard rock phosphate of Florida ruling at twelve pence per unit in the ton, c. i. f., at the ports of Europe. This is equal to about \$13 per ton f. o. b. American ports. This price gave a tremendous stimulus to the industry and capital flowed into the State. The territory swarmed with exploitants of every description—the woods were full of them. At this juncture the directors of a company, which, by the way, has, in Arabian fashion, since "folded its tents," conceived the idea that it had sufficient outcrop rock to supply an open market and sufficient facilities to insure it an exhaustless and ready output, and, rejoicing in a misjudged strength, sought to sweep away all competition by authorizing unlimited sales by their London brokers at cut rates. Without a second bidding the representative sold heavily in 10,000-ton lots for as low as ten pence. The cut was met by other brokers, and prices were further slaughtered by brokers who were irresponsible and utterly unable to make good their promised deliveries. At the same time many companies whose financial condition might be rated "weak," in their anxiety to make sales, authorized numerous brokers to offer in the markets of the world what rock they had on the bank, and did not confine instructions to men or places. The result was the European markets were flooded with offerings, the same rock being offered over and over by different brokers, and the price rapidly fell to eight and a-half pence, equal to \$8.00 f. o. b. at Florida ports. This decline reflected disastrously on the products of the mines of other countries, until all were working at a disadvantage. Florida had broken down the market of the world, and that through no fault of the rock itself, but from the faulty operations in its sale, together with the subsidence of the "boom" wave which every practical person interested might have foreseen.

The consumptive capacity of European manufacturers is placed by conservative authorities at 125,000 to 150,000 tons annually. So far this amount has not gone forward, nor is it likely the shipments for this year will reach that quantity, and those best informed feel assured of a restoration of the twelve pence per unit price, equivalent to \$13.00 per ton f. o. b. Florida ports. The average shipments so far would indicate an approximation of 100,000 tons high grade rock for the year, but it must be borne in mind that many of the mines have now about worked out their outcrops and are going deeper, necessitating the purchase of better adapted and more expensive machinery. Some of them will not be willing, or perhaps able, to make such outlays as will enable them to compete in price and production.

This being the situation, and it becoming evident that the market of the world would not be overstocked with high-grade Florida rock, prices have advanced to nine and a-quarter pence per unit. This price would in all probability have been further improved had not a broker, with insufficient cause, refused to take a 10,000-ton lot of hard rock as per contract, forcing it to sale upon a market



which was just reinstating itself. This untoward circumstance seems again to be the fault of the brokers, and not the rock, if the circumstances as coming to me are correct. For this there should be some cure, following out the old common law maxim that "every wrong has its remedy." That an article so important to the world and so valuable in itself should be battered by incompetent brokers until the legitimate margin was trimmed to incredible thinness sets sober people to thinking. Here is a reduction from \$13 to \$8 per ton, or \$5 per ton less profit. In an export of 100,000 tons that reaches the sum of \$500,000 lost to miners through the wild, unskilled or reckless operation of men who too often have all to win and nothing to lose.

Where, then, must the remedy be looked for? The diversified nature of the industry, the widespread extent of territory bearing phosphates (some mines being nearly 400 miles apart), the varying motives of the different companies, all render a general combine almost impossible. All efforts in that direction have so far proved futile. If accomplished at all it would have to be dual in its nature, one organization for pebble and one for hard rock. The hope, then, is for every company seriously engaged in the business to select the best representatives to handle its product, and, if possible, to concentrate on such parties as will protect the interest of seller as well as buyer; then to give a proper guarantee, and not place the product of a great and growing industry at the mercy of men who, having nothing with which to answer to damages, fritter away the mighty opportunities in grasping for gold straws and turn the splendid find of the industrious miner to ashes in his very grasp.

Too much solicitude cannot be had in the selection of a representative who will do right. The schedule of prices of some brokers which have come under my notice look more like a list of court costs or a plumber's bill. It would be a most difficult thing to concentrate the product of so vast a territory into any two or three hands, nor would such a concentration be expedient, holding out as it would so great temptations for wrongdoing, but the subject merits the most earnest attention of the phosphate producers. If wisdom and moderation prevail, the end in view, the protection of the industry, can be compassed, and that without present serious sacrifice and with promise of great things for the future.

In the hard rock region there are four centers of activity at present—the Ocala region, embracing the Dunnellon and other mines; the Anthony region, the Albion region and the High Springs district. In each there is a good deal going on. Dunnellon and neighboring companies are mining and shipping. All the plate rock mines around Anthony seem to be busy mining and putting in improved washers and other machinery. Around Albion the Osceola mine has just completed its first shipments, the Albion Phosphate Mining & Chemical Co. will put in two new washers, the Suwanee Phosphate Co. will build a ten-mile broad-gauge railroad from their lands to the main lines of the Florida Central & Peninsula Railroad, and the Phosphate Development & Financial Co. and the Sebastopol Co. are putting in a side track of a mile to their mines. In addition some heavy negotiations with Eastern capitalists are now pending and some large transfers may be made.

The port of Fernandina is forwarding the hard rock product through the elevator there with a regularity which gives abundant promise for the future. The accompanying table shows the official shipments from this port from May, 1890, to May, 1892, inclusive, and gives food for study to all interested in the business.

These shipments came from the mines

of the Marion, Dunnellon, Peninsular, Withlacoochee, Ocala & Blue River, Peninsular & Withlacoochee, Albion & Florida, Standard, Florida, Stonewall, Illinois, Empire State, Carney and Early Bird companies and from B. Arentz and Clarke, Ladureau & Co.

For June, 1892, the shipments were as follows: British stmp. Swedish Prince, 2,026 tons, to St. Louis du Rhone, France; British stmp. Gardapee, 1,995 tons, to Hamburg, Germany; British stmp. Glanswyth, 1,987 tons, to Hamburg, Germany; British stmp. Hallamshire, 1,466 tons, to Garston, England—total 7,472 tons.

These shipments came from the Illinois, Empire State, Osceola and Dunnellon mines.

are adjusting themselves, and a rate has at last been reached which will further instill life in the work of mining. The lowest freight yet is fifteen shillings to the United Kingdom or Germany.

The Savannah, Florida & Western Railroad and connections are catching a little of this business and cargoes of hard rock from the High Springs district have recently been shipped over its rails through the port of Brunswick, Ga. Authorities there, however, declined to give name of carriers or destination—why is not known.

The developments of the past two months are exceedingly favorable to the phosphate interests of the State, and Florida is ready to nail to the masthead the pennant "We Dictate the Price."

#### PHOSPHATE VESSELS CLEARED FROM FERNANDINA.

Date Cleared.	Name of Vessel.	Flag.	Port of Destination.	Tonnage.	Draft on Clearing.
1890.					ft. in.
May 14	Stmp. Hallamshire	British	Hamburg, Ger.	1,511	17 10
June 2	Stmp. Elstora	British	Hamburg, Ger.	2,000	18
Aug 30	Schr. W. J. Boyd	American	Baltimore, Md.	998	17
Oct. 2	Stmp. Salamanca	British	London, Eng.	1,453	15 10
Nov. 23	Stmp. Hallamshire	British	London, Eng.	2,300	17
Dec. 30	Stmp. Louise H.	British	London, Eng.	1,473	16 8
31	Stmp. Arisaig	British	Liverpool, Eng.	790	15
1891.					
Jan. 16	Stmp. Winston	British	London, Eng.	1,401	18 3
29	Stmp. Iron Queen	British	Dublin, Ire.	358	12 6
Feb. 22	Stmp. Pallion	British	Stettin, Ger.	1,680	17 4
23	Stmp. Hassel	British	Kostrup, Den.	2,343	17 1
23	Stmp. Yorkshire	British	Lodsgrova, Swe.	1,500	17 1
April 19	Stmp. Longhurst	British	Hamburg, Ger.	1,750	17 6
25	Stmp. Tomore	British	London, Eng.	1,952	17 5
29	Stmp. Rocklands	British	London, Eng.	747	13 5
May 31	Stmp. Navigation	British	London, Eng.	1,939	13 3
June 4	Stmp. Canton	British	Hamburg, Ger.	1,628	17 10
14	Starkentine Reigate	British	Aberdeen, Scot.	680	15
20	Stmp. Stuart Prince	British	Hamburg, Ger.	1,842	17 3
28	Stmp. Clara Seigham	German	London, Eng.	1,637	17 8
July 27	Stmp. Fairfield	British	Stettin, Ger.	1,918	17 1
27	Stmp. Feida	British	Hamburg, Ger.	2,257	18 6
Aug. 5	Bark Mendoza	British	Dublin, Ire.	710	16
21	Stmp. Portugulete	British	Hamburg, Ger.	1,720	16
Sept. 11	Stmp. Hallamshire	British	Hamburg, Ger.	1,490	17 3
12	Stmp. King Alfred	British	Liverpool, Eng.	1,330	16
17	Stmp. Langston	British	Hamburg, Ger.	1,490	16 6
Oct. 8	Stmp. Samora	British	Stettin, Ger.	2,200	16 9
21	Stmp. Alsester	British	London, Eng.	1,100	15
22	Bark Severn	British	London, Eng.	670	15
27	Stmp. Endeavor	British	Stettin, Ger.	2,300	17 10
Nov. 2	Stmp. Cyanus	British	Hamburg, Ger.	2,000	17
4	Stmp. Tonaz	British	Belfast, Ire.	1,300	16
10	Stmp. White Jacket	British	Hamburg, Ger.	2,050	18
10	Bark Iron Queen	British	Ayr, Scot.	370	13
10	Schr. D. Gregory	American	Philadelphia, Pa.	950	16
Dec. 1	Stmp. Royal Welch	British	New Castle, Eng.	1,100	17
4	Stmp. Oakdale	British	London, Eng.	1,565	17 8
5	Stmp. Hallamshire	British	Gottenburg, Swe.	1,451	17 6
21	Stmp. Alavich	French	France	1,814	18
23	Stmp. Tomore	British	Liverpool, Eng.	1,600	14 9
30	Schr. J. Hall	American	Richmond, Va.	508	14 8
1892.					
Jan. 2	Stmp. Samuel Tysack	British	London, Eng.	2,100	18
9	Schr. Minnie Louise	British	Barbadoes	302	13
12	Bark Africa	French	London, Eng.	653	16 6
14	Stmp. Irthington	British	Stettin, Ger.	1,492	17 6
29	Bark Mazathie	French	London, Eng.	692	16 10
Feb. 7	Stmp. Svedenham	British	Hamburg, Ger.	1,601	17 6
23	Schr. Edna	American	Barbadoes	481	15 3
25	Stmp. Sunshine	British	Hull, Eng.	1,973	17 6
Mar. 1	Stmp. Coventry	British	Stettin, Ger.	1,842	17 9
5	Stmp. Bernard	British	Berkehead, Eng.	1,970	17 3
11	Stmp. Storra Lee	British	London, Eng.	1,826	18 1
19	Stmp. Ruabon	British	Rotterdam, Neth.	2,487	17 6
22	Stmp. Craiglands	British	Stettin, Ger.	1,650	16 8
26	Stmp. Roseville	British	Memel, Ger.	1,875	17 7
26	Schr. S. B. Marta	American	Baltimore, Md.	805	15 3
26	Stmp. Ernvarich	German	Copenhagen, Den.	1,600	17 9
31	Stmp. Hallamshire	British	Inswich, Eng.	1,550	17 7
31	Bark Grolmina	Italian	Valencia, Spai	810	15 7
April 16	Schr. L. Garretson	American	Wilmington, Del.	810	14
23	Stmp. Resolven	British	Hamburg, Ger.	1,995	18 5
25	Stmp. Deer Hill	British	Ponness, Scot.	1,933	18 5
28	Stmp. Glen Isle	British	Hamburg, Ger.	2,000	17 11
28	Stmp. Potaro	British	River Oder, Ger.	1,360	16 4
30	Stmp. Kirtle	British	Kostrup, Den.	1,627	16 8
May 4	Stmp. Norland	British	Stettin, Ger.	2,257	17 9
11	Stmp. Kate Fawcett	British	Dantzig, Ger.	1,475	18
17	Stmp. Milo	British	River Oder, Ger.	2,248	17 6
20	Stmp. Hesse	British	Genoa, Italy	2,337	17 8
21	Stmp. Orkla	British	London, Eng.	2,247	18 2
27	Schr. K. P. Ebeues	American	Baltimore, Md.	780	16
30	Stmp. Storra Lee	British	Hamburg, Ger.	1,963	18 3
31	Stmp. Axminster	British	Leith, Scot.	2,414	18 2
Total for the two years				114,380	

The shipments, present and prospective, for July under charter, destination not yet made known, are from the Florida Phosphate Co., one ship; Illinois Phosphate Co., one ship; Cie des Phosphate de France, six ships; Dunnellon Phosphate Co., one ship, and B. Arentz & Co., one ship. They will aggregate 16,000 tons. From this port the first shipments of river pebble of 5,000 tons will be made during this month. They are from the Alafia river district and will be shipped by the Cie des Phosphates de France. The work of forwarding is very efficiently handled at Fernandina by Messrs. John G. McGiffin & Co.

The ocean freights, which long have been a source of great anxiety to shippers,

#### Manufacturing Notes.

THE Marietta (Ga.) Manufacturing Co. has completed its chair factory and operations have commenced. Jas R. Brumby is the company's president, and W. E. Gilbert, secretary.

THE Flatonia (Texas) Oil Mill Co. will erect its cottonseed-oil mill at once. Work on the buildings has already commenced.

THE Triple Wire Nail Machine Co.'s buildings at Bridgeport, Ala., are completed, and the machinery will be placed as soon as it arrives. Five carloads are now on the way from Parkersburg, W. Va. This plant is to commence operations about September 1, and will employ about 100 men.

#### Some Valuable Suggestions Founded Upon an Encouraging Instance.

By Thomas P. Grasty.

When the ancient cities of Sodom and Gomorrah had incurred the divine displeasure, we all remember how it was proposed to the pious patriarch that if, peradventure, he could produce five righteous men, the entire iniquitous population should be spared. Who, in this day and time, has not seen even more convincing instances of favor to the many through the merits of the few? In fact, I have seen the salvation of so many places vouchsafed through the endeavors of one man, that the conviction has grown upon my mind that if father Lot had been just a little more enterprising and persistent he might have appeased the wrath of Jehovah and saved from destruction even two such God-forsaken places as Sodom and Gomorrah.

The truth is, and all history shows it, most good works, most great movements, most revolutions, are compassed by single-handed endeavor. Failure to realize what not five men alone, but what one man may do, is keeping "in the soup" whole States and districts and cities, especially in that part of our common country called the South. It is really disheartening, yes sickening, to hear a half dozen strong young fellows bemoaning stagnation for which their own inertia is largely responsible, although they, like the original Adam, are quick enough to lay the blame on the shoulders of others. Any healthy, fairly endowed young man can, by persistent endeavor and singleness of aim, put in motion a current of progress that will soon or late sweep out of town the accumulated debris of generations of inaction. But instead of making up his mind to do this, he will, as a rule, tell you long-winded stories of how the "mossbacks" obstruct every move in the right direction, and come to a climax with that worm-eaten chestnut about the necessity for "a few first-class funerals." If he would only think right hard for a moment along a logical line he would realize that in a few years he himself will fall into the ranks of those whose funerals will be devoutly desired by the rising generation.

And this brings to mind another absurd heresy which is just now temporarily prevalent owing to the dozen or more untimely, abortive "booms" that have arisen here and there in Virginia and one or two other Southern States. Whenever the establishment of some enterprise for the public behoof is proposed, it is not uncommon to hear a piping chorus whose measly refrain is, "Don't build a mill or factory, it might make a 'busted boom.'" That men outside of feeble-minded institutions and insane asylums should so confound cause and effect, and attribute to factories what resulted from their lack, is incredible. But all the same they do it every day. "Look at Basic City," one exclaims, "and see the empty houses and deserted streets. Oh, no, we don't want any factories in our town." Although it seems as simple as to say that an engine will not run without steam, nevertheless it may be worth while to explain that if Basic City's money had not given out, its houses would not be empty and its streets in such solemn solitude. The causes of the busted booms are identical with the causes of the thousands of failures that Bradstreet and Dun annually record all over the land.

There is, moreover, a wide, wide difference between factories adapted to the resources of a given point and factories put on paper for lot-selling purposes; between factories planned for making permanent pay-rolls and factories rushed up to look at and talk about; a wide, wide difference between honest development in accordance with the fitness of things natural and



commercial and that pseudo development which is sprung upon the public not for the public's good, but for the public's blood; and, what is more, the substantial, clear-headed business men, whose co-operation is valuable, can now discern the difference like skillful tellers in banks can catch on to counterfeits.

But that is getting away from what I started out to talk about, which was of the lesson taught by the rise and progress of a town south of the Ohio river and what a few men have done in its behalf. That town is Huntington, W. Va. And in this connection the State of West Virginia is a singularly fortunate commonwealth in respect to the results that have been obtained by one-man effort. Consider what Johnson N. Camden, for instance, has done in the way of opening up West Virginia's wildernesses. But his name and fame need no accentuation.

This town, or more properly this city, of Huntington is really a more emphatic and wholesome example of what may be done in the line of city-building in the South than even Roanoke, although it has been far less extensively advertised. It is about ten years old, has near 20,000 inhabitants, has many solid and prosperous industries, a growing and substantial trade, and, what is best of all, although on an average improved property pays 15 per cent. on the investment, it has never been the scene of excited speculation. Of course that sort of thing will come, unless, forsooth, it happen that human nature itself shall shortly undergo a change, for craziness over real estate invariably at some time or other (more's the pity) accompanies all rapid development, be that development actual or apparent, because it is merely a phase of the universal gambling instinct founded on the hope of profit and the chances of unloading on the other fellow.

However that may be, Huntington has never had a backset, never any ebb in its flowing tide, since Collis P. Huntington and his associates first made it the shop town of the Chesapeake & Ohio Railway and started the great Ensign Car Works.

But it has been during the last year or two that Huntington, having got its second wind, has made its greatest strides, and when I say Huntington I mean Central City, which is really a part of the place (being also in the natural direction of the city's growth), although bearing, for the sake of convenience, a separate name. The place was for a long time notable as a mudhole, but now is being brick-paved in a style that may well invoke the envy of Cincinnati or Baltimore. It is magnificently lighted and has an electric street-car system which is a model in meeting the needs of a large tin-bucket brigade. All that it requires in a public way is a first-class hotel modernly appointed, now in course of construction.

What has given to Huntington a great recent impetus is the development at Central City and still further westward and down the river at Kellogg, the main author and creator of which has been the man who built the street railway and lighted the town with electricity and kept up the agitation that has resulted in the best paved streets out of Washington. Although president and really manager of a bank, owner of the electric plant and car lines and of houses and other things to be looked after, he has nevertheless found time to locate and establish at Central City industries enough to sustain a population nearly as large as that of Huntington a year ago, and it is considered by practical men that what has been done in this direction is only the nucleus of what will be—all of which I say not to please that particular man, whose name is J. L. Caldwell, but to encourage others to undertake difficult tasks, to point out one field at least where the harvest (all over the South) is plentiful but the laborers few. And why

are they so few? Because they sit "like humps on a log" doing the Micawber act, "waiting for something to turn up," forgetting that a man has only to believe a thing hard enough himself to make all his neighbors and friends, aye, and the stranger within his gates, believe it too. This man Caldwell believed in Huntington and stuck to it and kept rolling stones up hill for its prosperity. Young man, believe in your town and stick to it, and never mind if the grade is heavy keep on rolling, and you, like him, will make money for yourself, and what you will enjoy just as much or more, if you're got the right sort of metal in you, you will make money for your friends and neighbors.

Don't imagine that the grass must be permitted to grow in the streets of your town and the goods boxes kept covered with loafers for lack of work and the young men and women allowed to go to seed (if not to the devil) through enforced idleness because a few bubbles have burst and a few visionary schemes collapsed. Study out what will pay in your town and get it established there.

It is true that the town of Huntington, which I am making the text for all this talk, is exceptionally situated in respect to the raw material for manufacture as well as transportation facilities. It has south of it a vast undeveloped country full of coal and timber. It is virtually where the two greatest coal and mineral railroads of the South Appalachian region (the Norfolk & Western and the Chesapeake & Ohio) come together on the bank of the only navigable river worth speaking of between the Mississippi and the Atlantic ocean. Nevertheless there are plenty of places whose advantages may be fewer, but which may be turned to comparatively as good account.

Now let us take a look at what has been done here during the last twelve months, and most of it since the alleged "booms" at other points shriveled up completely. There are three glass factories, a brewery, a large ice plant, three large woodworking plants, an excelsior and mattress factory, a big flooring mill, two extensive brick and tile works and a cooperage concern, and the largest handle works in this section of the Union, 90 per cent. of whose product is shipped to foreign lands. It is one of the best locations in the country for a tannery.

Were I attempting to write descriptively I should tell of the railroads, especially the Ohio Valley extension, and the new buildings going up, but that would only divert attention from the main point I am trying to make, namely, how the collapse of the boom at some places has not hurt well-planned, sensibly-managed development in the line of town building. And I desire to record the prediction that if the Southern cities which have genuine advantages shall, between now and the close of the Columbian Exposition, make known these advantages systematically and in a conservative, business-like way, the expansion of Huntington will be duplicated at a dozen other points. No Southern city is yet too big to grow, especially in respect to its industries.

### The Mississippi Problem.

[Lewis M. Haupt in July *Engineering Magazine*.]

The recent disastrous floods have served to impress the importance of the greatest hydraulic problem in the world. Before receiving the June number of the *Engineering Magazine* containing the article on "Impending Disaster on the Mississippi," I felt strongly impelled to present a forcible and, it seems to me, unanswerable argument to the reader in the interest of humanity as well as of science.

It is a remarkable fact that in the discussions which have arisen in Congress upon the proper policy to be pursued with reference to the treatment of the Mississippi, the members who represent the districts adjacent to the stream are found to be

warm advocates of levees, those more remote are less inclined to that method, while those members who are entirely removed from its influence are, in general, decidedly opposed to it.

The engineers employed on the river, who may at first be opposed to levees, learn in time to conform to the sentiment of the community, and it is, therefore, something of a surprise to find "A Southern Engineer" stating in the *Engineering Magazine* that, "theoretically, and even without any reference to experience, it should be seen that building dikes along the shores of frequently swollen rivers must result in raising the bed over which the waters flow."

There are many theories, no doubt, but there is also a common sense view of the problem which a casual observer of natural agencies can scarcely fail to note, yet the innate desire to protect one's life and property is so great as to produce a delusive hope that "things may not be what they seem," and as the first and about the only resource against inundation is an embankment, the logical consequence is an entrenchment of the lands bordering the river, to protect them from overflow. This is the underlying and potent reason for the policy in vogue along the river, and there are engineers of note who maintain that by contracting and confining the raging stream between levees, its velocity is increased and its bed lowered.

The mistake made is in considering the effects in short reaches, rather than in taking the river as a whole. When it is remembered that it drains over 1,240,000 square miles, or about one-third of the entire United States; that its tributaries start at elevations reaching over a mile in altitude; that the disintegration from this extensive territory is finally deposited in the beds of the streams and rolled on toward the deepest thalweg, whence it can only escape by being carried out through the mouths of the delta, some idea may be formed of the capacity of the dumping ground required for the annual deposits of sediment.

In the voluminous discussions and hearings upon this oft-mooted subject no one has ever attempted to show that the amount of sediment ejected from the river's mouths at all approximates to that received from the tributaries or eroded from its banks and bed, yet it is a self evident proposition that, unless these two quantities be equal, there must be an annual and permanent deposition in the bed of the stream, causing that bed, taken in toto, to rise. This opinion has been feelingly denied, and it is even attempted to prove that the beds of the far-famed Po, Danube, Yellow, Ganges and other alluvial streams of lesser extent are not rising.

In a state of nature the river has provided its own "dump" by overflowing the wide valley through which it flows, dropping its heaviest sediment nearest its edges, and building up a traverse highest near the brink, sloping away from the borders to the lower swamps and bayous beyond. Thus the rich alluvial territory from Cairo to the Gulf has been constructed out of the terrane from the mountains, and an ample dump has been furnished for the silt bearing stream; but if the river be leveed along its entire course, and be compelled to bear its burden over these thousand miles, it will not be found able to cut deeper when surcharged with sediment, but it will drop its load in every available pool or bend at high water, and assuredly and rapidly raise its bed.

The remedy suggested by our Southern author is to open up the lateral streams and divert some of the flood waters through more direct, shorter and steeper channels to the Gulf, the same as has been so frequently urged by Captain Cowden under the name of the "outlet" system, and which has been so rigorously opposed by many

engineers employed on the river, because of the alleged formation of bars below the outlets. This feature, however, is even now being carefully studied by some members of the corps of engineers in charge of sections of the river, and the data thus far collected would seem to show very grave doubts upon the supposed injury to the lower reaches from the outlets.

Following nature's method, however, and compromising with the land owner, it would seem practicable to provide a sufficient number of large lateral subsiding basins or lakes by inclosing extensive areas at intervals where the topography admitted of economical construction, into which the flood waters could escape, and in which, the velocity being reduced, a large part of the silt would be precipitated, while, after the passage of the crest of the flood wave, the clearer waters from the reservoirs would return to the river and become useful for navigation. In short, instead of serving the sole purpose of maintaining the water supply for low stages, as do the reservoirs in the upper Mississippi, they would also reduce the rate of raising the bed by providing lateral dumping grounds outside of the bed of the stream, and would also reduce the flood plane and dangers from inundations. There are numerous places on the river where, by making return dikes extending back to the bluffs, many square miles of land now of little value might be utilized for such safety valves for the river, with substantial benefit and at a comparatively small cost.

With reference to the probable effects of the lateral or outlet plan, while there is no grand precedent for it, there are many instances which would point strongly to its success, and one of the best which has recently fallen under my observation is to be found in the lowering of the flood plane of the Tyne in England, due to the removal of bars and obstructions at its mouth and along its lower reaches as far as Newcastle.

The method of revetting the banks to prevent cutting may, no doubt, be justified in many local instances, but it does not seem to be consistent with the permanent improvement of a silt-bearing stream, as it merely prevents erosion in one place to cause it in another.

Captain Cowden has reduced his outlet theory to the aphorism "make the overflow greater than the inflow and there can be no overflow." In applying it he proposes to cut off a portion of the inflow by conducting it through lateral channels to the Gulf and thus preventing the tributary sediment from ever entering the main stream. This certainly is a desirable feature which appears to have been overlooked.

It does not appear rational to expect any permanent improvement to a stream until the obstructions at its mouth be reduced and the surface slope in its lower reaches be increased, whether these obstructions be in the nature of mud or of water fed by tributary courses. The systematic improvement of the river must treat the problem as a whole, and provide at high stages for the rapid emptying of its basin at the outlet, the retardation of its filling by its tributaries and provision for deposition of its load and temporary escape of its excess of water along its course, while for the low water stages for navigation the stream must be canalized so far as practicable to retain a nearly uniform velocity.

NEWFOUNDLAND has generally been supposed to contain no workable coal seams, but investigation has shown a seam twenty-seven feet in thickness. A colonial report on Newfoundland states that ores of antimony, zinc, molybdenite, manganese, chromite, nickel, hematite, rutile, gold and silver are all known to exist, though in what quantity has not been ascertained.



## RAILROAD NEWS.

[A complete record of all new railroad building in the South will be found in the Construction Department, on page 41.]

## The News of Wall Street.

OFFICE OF MANUFACTURERS' RECORD,  
No. 126 Liberty Street,  
New York, July 13.

As last week's letter indicated, the uncertainty as to what Congress would do with the Silver bill and the qualms of capital at the most deplorable affair at Homestead have been the dominating features in the current talk on which Wall street is depended upon, often too erroneously by the way, to act. If these situations should dominate the trading as they do the gossip, a better feeling should immediately be manifested in the share speculation and investment dealings of the New York Stock Exchange. For those very senators who voted in the upper House for the Stewart Free Coinage bill—Bland's bill minus some of its terrifying features—are the ones who shrink from letting it go to the President and permit him to make capital for his campaign by one of those vetoes which would cause the unthinking to exclaim, "Here is one of the greatest, most statesmanlike, and, above all, most important State papers since the days of Washington and Hamilton." Rather than embarrass themselves and give aid to the enemy—I am speaking now of both democratic and so-called anti-Harrison silver senators—they would turn the issue aside and let the bill be defeated by votes from both parties in the House, and are in fact encouraging the anti-silver sentiment in the House. That's politics.

But finance comes into the question largely. Every big banker, almost, is an anti free-coinage man. He gives you his reasons, with which I will not bore you in this weather as he has me, in the most convincing way. I have heard of bankers and big Wall street magnates who are in favor of free silver, but it has not been my fortune to find them, although I have made a somewhat diligent inquiry for them.

These things being so, I think I am right in putting down the present cessation of hostilities in the matter of agitation for the free coinage of silver on the side of greater confidence of capital in the present situation, and in conjecturing that it should enure to the benefit of investors in all good securities.

While we are on the subject of politics, a subject the street takes much interest in in presidential years, it might be well to call attention to the fact that I have never before in a presidential year seen so little interest manifested in the success of either side on the part of the men with large interests at stake as at the beginning of this campaign. There are no dismal prophecies of disaster if one or the other is elected. In 1884 there was a big scare over Blaine in the street, and financial interests were largely thrown in Cleveland's favor. In 1888 there was a greater division over the questions of tariff reduction and higher protective politics, and things got hotter. This year Wall street is taking it very quietly. Mr. Cleveland is a neighbor of the Wall street men, and even those republicans who are not politicians would not be sorry to see him elected, believing that their neighbor in the Mills building has sufficient knowledge of affairs to make no disturbance of existing values. On the other hand, this class has no fear of unpleasant consequences to capital and vested interests in the event of the re-election of the present Chief Executive, whose administration they do not condemn on any question of business policy. I tell of this feeling simply to draw a further deduction that the political campaign should not be regarded as an

ultra-disturbing factor in the financial world.

Coming now to the subject about which there has been the most apprehension—the strike and rioting at Homestead—there is further cause for confidence in the future. Order has been restored at the first sight of the military arm of the people—not only of the people who work with their hands or heads for others at so much per day or month, but for those people without whom these men could not obtain employment—the owners of property.

There is not much to be said this week on the general situation of Richmond Terminal. The working out of the salvation of moneys tied up in this gigantic tangle is necessarily a slow process. The street watches the various steps by which this is to be brought about with interest and anxiety. There has been no movement of importance sufficient to deserve mention. Generally people here believe the system will not be disintegrated. Generally they think that what should be built up into a most important factor in the development of the future of those States which are tributary to it has been instead used as a toy or tool for financial juggling—to call it by the mildest name that now occurs to me. I propose in the MANUFACTURERS' RECORD shortly to dwell upon this point at some length, first, because it is apparent that the South needs such a railroad system for its own prosperity; second, that it must be managed as conservatively, and, I might say, co-operatively, as great systems like the Pennsylvania are, and third, because when railroads are consolidated merely to "thimble" stock markets and to play the shell game of the country fair fakir with local investors, the robbery of these interests does not terminate the injury; the whole country dependent upon the railway system receives incalculable harm.

Just by way of showing that my views with regard to the Olcott plan were not so far out of the way (I heard no little criticism of them from some quarters), I beg leave to present this extract from a leading New York paper, written by one of the highest rated financial writers in the metropolis, which coincides with my opinions of weeks and months ago:

The complications of the Richmond Terminal System have been steadily increasing until it is now plain that all of the security holders, the underlying bonds as well as the junior securities, are in the plight that was predicted for them in event of the failure of the so-called Olcott plan of reorganization. When that plan was before the public the opinion was entertained by many that predictions of receiverships and other disasters were made with the view of frightening the security holders into supporting the plan. Time has proved that the prognostications of the committee and its friends were accurate, and a further lapse of time will unquestionably convince the holders of many underlying liens that their securities are much less valuable than they had supposed. Already some of the holders of Richmond & Danville prior lien bonds have placed themselves at a decided disadvantage by surrendering their coupons, not for cancellation, but into the hands of those that are evidently bent upon securing absolute control of the property in their own interests. The expenses of reorganization and the time that will be required to effect one have already been immeasurably increased; hence the lesson that the security holders will learn from their inactivity and their obedience to interested advisers is certain to be a most severe and costly one. So far as can be learned no substantial progress toward lifting the Terminal System out of its troubles has been made this week.

## Reorganization for the Central.

The Central Railroad of Georgia, now in a receiver's hands, will likely be reorganized on a plan providing for a consolidation of all the lines of the system and the issuance of a general blanket mortgage to take up all outstanding bonds and other obligations. Speyer & Co., the New York banking firm which negotiated the loan of \$3,700,000 to meet the floating debt of the Central last summer, have undertaken the reorganization, and will be assisted by a committee including Charles G. Fairchild,

president of the New York Security & Trust Co.; William G. Raoul, ex-president of the Central Railroad & Banking Co.; Frederick P. Olcott and Walter Luttgen, of August Belmont & Co., and others to be selected. The syndicate which advanced the \$3,700,000 is secured by \$7,000,000 consolidated mortgage 5 per cent. bonds, and any scheme for reorganization indorsed by it would probably go through. A scaling down of the interest and the issue of 4 per cent. bonds covering all underlying securities is proposed. The bonded indebtedness and certificates of debt amount to nearly \$20,000,000 outstanding, as follows: General mortgage "tripartite" bonds, \$4,999,000 7 per cent.; consolidated mortgage, \$7,000,000 5 per cent.; collateral trust gold bonds, \$4,880,000 5 per cent.; certificates of debt, payable at option, \$4,600,000 6 per cent.; Ocean Steamship Co. first mortgage bonds, \$1,000,000 5 per cent.; Hoboken wharf bonds, \$315,000 4 per cent.; Savannah & Atlantic first mortgage, \$250,000 5 per cent.

The holders of the \$7,755,000 of first consolidated 5 per cent. Savannah & Western bonds, being sure of their interest, will likely prove a bone of contention and resist the scaling process. The total floating debt amounts to \$5,000,000, and on January 1 provision must be made for the payment of the \$4,999,000 7 per cent. tripartite bonds.

## The Jacksonville, Tampa &amp; Key West.

The suit for a receivership for the Jacksonville, Tampa & Key West Railroad is for the purpose of obtaining a final accounting between the company and the American Construction Co., of Chicago, Ill., which had the contract originally for the construction of the road, and also to secure a determination as to what the floating indebtedness of the railroad may be. The validity of the mortgage bonds is not called into question in this suit. The bill as filed, on the contrary, expressly alleges that the cash revenues are more than sufficient to meet the interest charges. The net earnings of the road for the last fiscal year were more than three times the amount of the interest on its first mortgage bonds, which are \$1,566,000 of 6s. The company recently obtained full possession of the Florida Southern by foreclosing its mortgage. The mileage of the Jacksonville, Tampa & Key West, including branches and leased lines, is 200 miles, and with the Florida Southern aggregates 507½ miles. Robert H. Coleman, of Cornwall, Pa., is president of the company, and its property is valued at fully \$5,000,000.

## New Mileage in North Carolina.

The North Carolina Railroad commission finds that since the last assessment for taxation, a year ago, the following roads have been completed:

Murfreesboro branch, six miles, from Pendleton to Murfreesboro.

Washington branch, Atlantic Coast Line, twenty-eight miles, from the Albemarle & Raleigh road to Washington.

Wilson & Florence branch, Atlantic Coast Line, eighty miles, from Fayetteville southward to the State line.

Richmond & Danville, from Winston to Mocksville, twenty-six miles.

Two lumber roads, carrying passengers, have been built, one in Bertie and one in Moore county.

The commission has increased by \$7,000,000 the assessed value of the railways in the State, but of this amount \$1,627,000 is now in litigation.

## Railroad Notes.

PRESIDENT INGALLS, of the Chesapeake & Ohio, in a recent interview said that the earnings of the Chesapeake & Ohio were highly satisfactory. The road earned over

\$9,000,000 for the year ended the last of June, of which \$2,000,000 were from the passenger department. The company's work of double-tracking is going on steadily, and before very long the road will be double-tracked west of Clifton Forge, Va., to the Ohio river.

B. F. YOAKUM has been appointed traffic manager of the San Antonio & Aransas Pass Railroad. Mr. Yoakum is a capable official and was, previous to the receivership, general manager of that road and afterwards one of the receivers.

THERE is a probability that the proposed public sale of the Macon & Atlantic Railroad will be avoided and the property taken out of court. A private sale is talked of, and there appears to be two probable bidders—the Macon, Dublin & Savannah Railroad Co., which wants the Macon & Atlantic as link in its system, and the creditors of the road.

JUDGE McCORMICK, in the United States Circuit Court at Dallas, has denied the application of S. Sands and others for a receiver for the Galveston, Harrisburg & San Antonio Railroad and vacated the order restraining the Southern Pacific from voting its majority of stock in the road.

GOVERNOR HOLT has reappointed the following as directors of the North Carolina Railway on the part of the State: Aristide Barwell, John L. Morehead, Theodore F. Klutz, R. W. Thomas, M. A. Angier, William H. Pace and Robert F. Hoke. Armistead Jones, Esq., is reappointed State proxy.

W. M. DAVIDSON has been appointed general passenger agent of the Plant system of railroads, with headquarters at Jacksonville, Fla.

THE International & Great Northern will become a Gould road by passing from a receivership into the owners' hands. It is understood that T. M. Campbell, the receiver, will be made general manager under the reorganization.

THE St. Louis, Iron Mountain & Southern Railroad Co. has commenced operating the Camden & Alexandria Railroad, a 32 mile line lately purchased. W. T. Kelly is made superintendent.

THE total earnings of the railroads in South Carolina for the month of May is published by the State railroad commission as \$513,343.08, against \$564,423.80 for the same month of 1891.

SUIT has been filed at West Point, Miss., against the Richmond & Danville as lessee of the Georgia Pacific Railroad for \$73,000 State and county taxes for the years 1886 to 1892 inclusive.

T. W. GARRETT has taken charge of the Atlanta & Florida Railroad as receiver, and has appointed Robert F. Maddox, Jr., treasurer; W. E. Algee, auditor; H. M. Cottingham, general freight and passenger agent, and J. H. Humphries, master of trains.

ONE mile of the long tunnel being built under the city of Baltimore for the Baltimore Belt Railroad has been completed and 792 feet are yet to be built. It is thought that the greater part of the work, including open cuts, will be finished by January, 1893.

THE Paris, Marshall & Sabine Pass Railroad was offered for sale by A. R. Starr, special master in chancery, at Marshall, Texas, but no bids were made. The court has fixed a minimum price of \$45,000 on the property.

AN effort is being made to organize a company to erect a blast furnace at or near Cave Springs, Ga. The intention is to utilize the deposits of manganese ore in that neighborhood and make ferro-manganese. At present large quantities of the ore are being shipped to the Carnegie works in Pittsburgh, where it is said to be equal to Chilean ore.



## LUMBER MATTERS.

[For lumber market reports see pages 38 and 39. In the Construction Department, on pages 40 and 41, will be found a complete record of new mills and building operations in the South.]

## North Carolina Pine Demand

Among the many competitors of white pine that have come to prominence within a few years is what is known generally as North Carolina pine, though the mills which cut it are mainly in Virginia and Maryland. This North Carolina timber is of the yellow pine variety, but runs largely to sap, which when kiln-dried, makes a very beautiful, soft, white and desirable lumber. It is known in Philadelphia and some other sections as sapp pine, and has for a generation, under that title, been received with favor. But, as stated above, it is but a few years since it came much into prominence further to the North and East, but now in New York and Boston it finds ready sale for finishing lumber, and is also used in the form of dimension, joists and scantlings.

This year, more than ever, it seems to be meeting with favor, particularly for uses where it may be substituted for white pine. There has been a constant improvement going on among the mills, especially in regard to drying facilities, and, therefore, the fine kiln-dried stock, which is turned out in such large quantities from the mills at Norfolk and vicinity, find a quick demand, which makes glad the hearts of the manufacturers.—*Timberman.*

## The Greenleaf Johnson Lumber Co.'s Mills.

The season is already inaugurated for summer excursions and outings of every description and character, and among the most enjoyable was that conceived and carried out by the Greenleaf Johnson Lumber Co. during the week. Upon the invitation of the venerable president of the company, Mr. Greenleaf Johnson, a number of the representative lumber firms and box manufacturers of Baltimore left on Saturday last by the Bay Line steamer Virginia for Norfolk. On arriving at that point the party were royally entertained by the several directors and officers of the Greenleaf Johnson company resident there, after which the party left by the Norfolk & Atlantic Railroad for Virginia Beach, being entertained while there at the Hotel Princess Anne over Sunday. Returning to Norfolk, the party was taken on board Mr. Johnson's private steam yacht Ira, which conveyed them to Old Point and other places of interest on the harbor and bay. The most interesting and enjoyable incident of the trip, however, was yet in store for the excursionists, and a visit to the extensive lumber plants of the company was at once made.

No more extensive or perfectly appointed lumber milling plants exist to-day than those of this company. A close inspection of the plants was at once entered upon by the party, and the three extensive mills, employing over 200 men, were visited. Among their properties are twenty-nine dry-kilns of the latest improvements, and the yearly output is 36,000,000 feet of lumber. Their shipments are made to the New England, Middle and Western States. At the points of production the company has forty miles of railroad, four locomotives, eighty-five logging cars, and tows logs 200 miles through Cashie river to Albemarle sound, up North river, through Currituck sound, thence through Albemarle & Chesapeake Canal to mills on Elizabeth river to Norfolk.

The company owns 500,000,000 feet of standing timber and ten miles of broad-gauge railroad in Martin county, North Carolina, over which twenty cars per day are sent via Atlantic Coast Line and Nor-

folk & North Carolina Railroad to Norfolk. Their facilities for transportation are excellent, including three tugs, one large freight steamer and over twelve schooners, with which they deliver to all points on Atlantic coast and tributary bays and rivers. To see and become acquainted with these various properties mentioned was the primary object of the men composing the party, and right heartily did they enter upon this tour of inspection which ended with such gratifying results. The party consisted of Messrs. Howard M. Johnson, Greenleaf Johnson, George Asendorf, John Bruns, J. F. Passano, Harry P. Duker, J. L. Gilbert, Atrim Coriell, S. C. Rowland, Theophilus Tunis, Gustave Hauff, Harry Matthews, Louis Becker, Henry Becker, Philip Becker, William Thiemyer, Samuel Helfrich, Edward Duker, J. H. Duker, T. A. Charshee, Frederick Schulze, Sr., and Frederick Schulze, Jr. They returned on Tuesday morning by the Bay Line steamer from Norfolk, and all pronounced the trip a most pleasant and enjoyable one in every respect. The party received every attention from the Messrs. Johnson during the trip.

## Meeting of Lumbermen at Orange.

The quarterly meeting of the East Texas and Louisiana Lumber and Shingle Manufacturers' Association was held at Orange, Texas, on July 5th, with manufacturers present from Lake Charles, Orange, Beaumont and points on the Sabine & East Texas Railroad. Matters relating to transportation were discussed at some length, and a resolution was adopted asking for a conference with the traffic managers of the Huntington lines in Texas. After the transaction of routine business an adjournment was taken. The next meeting will be held October 4, at Lake Charles, La.

## Sampson's Process for Creosoting Timber.

A new process for saturating timber with creosote has been devised by Thomas H. Sampson, and is in use by the Southern Wood Manufacturing & Creosoting Co., Limited, at their plant on the Mississippi river, between Bordeaux and Lyons, La. In the process used by other inventors the timber is placed in a cylinder and heated to a temperature of about 300°, thereby boiling out the sap, but leaving the gum in the fibre, when it closes the pores and prevents the entrance of the creosoting liquid. Besides this the outside of the timber is dried more rapidly than the heart, and as it shrinks, it is likely to check and crack, thus injuring its value.

In the Williams process the stick of timber is placed in an inclined cylinder and gently heated in a vacuum to about 100°. By this means the sap is rendered very fluid and readily flows out, leaving the pores open and free to absorb the creosoting liquid.

It is estimated that the total cost of creosoting pine logs, including cost of logs, sawing, dressing and creosoting, will not exceed \$25 per 1000 feet, and as lumber thus treated would be equally as satisfactory as first-class cypress, which is worth \$35 per 1,000 feet, there will be a large margin of profit in the business.

## Southern Lumber Notes.

THE S. K. Paige Lumber Co., of Harri-man, Tenn., is busily engaged putting in the power and machinery for its saw mill and woodworking factory.

MESSRS. AMES & CO. have sold their heading factory at Union City, Tenn.

THE Ruddock Cypress Co.'s new single band saw mill near New Orleans, La., is about completed. Its capacity will be 50,000 feet of lumber daily.

THE first carload of lumber shipped over

the Kansas City, Watkins & Gulf Railway from Lake Charles, La., was from the mills of M. T. Jones & Co., and was billed for the Missouri Car & Foundry Co., of St. Louis. The Lake Charles lumber manufacturers expect to do a large business over the K. C. W. & G. R. R.

MR. F. E. TOWN and his associates, of Apalachicola, Fla., are preparing to erect a saw mill on the Ocklockonee river on the Carrabelle Railroad. Work on the buildings is to be pushed rapidly. The mill's capacity will be 50,000 feet daily.

G. W. TRUITT & Co., of Capron, Va., are busily at work improving their saw mill plant at that place. Considerable additional machinery is being put in, including boilers, and new dry-kilns are being built.

J. E. ETTRIDGE is making preparations for the erection of his saw and planing mill at Norfolk, Va.

AT Burnum Station, W. Va., Messrs. J. C. Watson & Co., formerly of Philadelphia, are operating what is the only plant of its kind in the State. They make a specialty of plow beams, and shipments direct to Africa and South America are numerous.

THE Ritchie Lumber Co., a newly chartered concern at Petroleum, W. Va., has purchased extensive tracts of timber land in Ritchie county, and proposes to make arrangements at once for active development. H. W. Rutherford is secretary of the company.

THE A. M. Stevens Lumber Co. has completed the circular saw mill which it has been putting in at Dyersburg, Tenn. Its capacity is 40,000 feet of lumber per day.

It is stated that during the six months ending June 30, 1892, 63,425,666 feet of lumber was shipped from Savannah, Ga.

SHIPMENTS of lumber from the port of Fernandina, Fla., for June were as follows: Coastwise 46,474,425 feet, foreign 1,085,540, making a total of 5,732,965 feet. Shipments of shingles amounted to 570,000.

MR. G. W. KLEINKNECHT, of Johnson City, Tenn., has recently made purchases of over 3,000,000 feet of lumber along the line of the Clinch Valley road and the Elkhorn division of the Norfolk & Western.

THE Neuse River Lumber Co., of Elizabeth City, N. C., has lately purchased an additional tract of 10,000 acres of timber land in North Carolina.

RICHMOND (Va.) parties have purchased timber rights in Cherokee and Towns counties, N. C. It is valued at \$21,000, and was secured from C. E. Graham and J. M. Thrash, of Asheville, N. C.

W. T. MOORE and J. I. Canon have purchased the saw mill and lumber business of W. R. Palmore & Son at Marion, Ala., and propose to continue it.

MESSRS. ELDER & BRADFORD, of Biloxi, Miss., have put in a planer, No. 18 D. S., and matcher made by Messrs. Goodell & Waters, of Philadelphia, Pa.

THE Altamaha Cypress Lumber Co., of Brunswick, Ga., has a model mill, with machinery of the heaviest character and equipped with all different classes of saw mill appliances and conveniences. The company is now sawing 50,000 feet of cypress lumber daily.

I. W. NORCROSS is building at Clinton, Tenn., a mill for sawing poplar, oak and walnut lumber. All machinery has been purchased, and the mill will be in operation in about thirty days.

MESSRS. CAMP & HINTON, of Lumberton, Miss., have completed their new saw mill plant at that place. Their outfit includes band, gang and circular saws.

THE Bolivar Manufacturing Co. has about completed its new lumber plant at Renovo, Miss., and will shortly commence sawing.

THE Ocean Springs (Miss.) Lumber Co.

has completed the erection of its new planing mill and dry-kilns, and is now prepared to furnish lumber.

## The Importance of Atlanta, Ga.

By Col. J. W. Avery.

Atlanta, which in 1835 was a piece of virgin woods, is to-day one of the most rapidly growing of the cities of the entire South and has a population of over 100,000 inhabitants.

The causes of this advance to municipal supremacy are worthy of note. Marked events have focalized upon the place the public attention and engendered the largest augury of its future. A statement of the facts will show a substantial ground for this unusual prominence and for the extended faith in its brilliant possibilities.

Half a century ago the great and far-sighted statesman John C. Calhoun wrought out in his own strong mind from natural considerations of geographical relation and topographical study, when the coming city was in its infancy, with nothing upon which to base a prophecy of growth beyond any other of the myriads of village germs, the positive and since fulfilled prediction of Atlanta's importance and certain greatness. He placed upon official record this wonderful forecast.

In November, 1845, he was president of the Southwestern Convention at Memphis, Tenn., and in a speech to the body, to be found on pages 266-7, vol. 6, of his works, these extraordinary words of foresight and prediction will be found:

What then is needed to complete a cheap, speedy and safe intercourse between the valley of the Mississippi and the Southern Atlantic coast is a good system of railroads. For this purpose the nature of the intervening country affords extraordinary advantages. Such is its formation from the course of the Tennessee, Cumberland and Alabama rivers and the termination of the various chains of the Alleghany mountains that all the railroads which have been projected or commenced, although each has looked only to its local interest, must necessarily unite at a point in DeKalb county, in the State of Georgia, called Atlanta, not far from Decatur, so as to constitute one entire system of railroads, having a mutual interest each in the other, instead of isolated rival roads.

The prophecy has been fulfilled in every particular and the wise prevision of the statesman verified.

Atlanta is the "Gate City," the only pass-way between the mighty West and the South Atlantic ocean.

Atlanta has become the natural pivot without a rival of a vast Southern railway system.

Atlanta has become the municipal leader in Georgia in population, trade, manufactures and wealth, with every potential element for undisputed Southern metropolitan supremacy.

Atlanta is the State's capital and its commanding center of commerce and transportation.

Atlanta is the prosperous hub of an immense wheel of thriving and magnificent suburbs tributary to it.

Atlanta alike teems with educational facilities and is a busy hive of throbbing and successful industries.

Atlanta is affluent with progressive seminaries of law, medicine and science, of learning and business, and rich in libraries.

Atlanta has the finest, largest, best equipped and best managed electric street railway system in the South.

Atlanta is the abode of eloquent divines, the treasury of noble churches, with beautiful homes and streets, cultured citizenship, renowned literatures, and a powerful press to illustrate and set off its solid and enterprising business guild.

THE Consolidated Street Railway Co., of Atlanta, is preparing to erect a large depot at which all the cars of the lines can be kept at night. Comfortable waiting-rooms for passengers and offices for the company's employes will be in the building.



## TEXTILES.

[A complete record of new textile enterprises in the South will be found in the Construction Department, on pages 40 and 41.]

## The Government Trials of Ramie Decorticators.

The tests of machines and processes for the decortication of ramie which will be held under direction of the United States Department of Agriculture at Audubon Park, New Orleans, the last week in September next, will be an important step in the solution of the problem of utilizing ramie fibre, and much interest is being manifested in the coming event. Under date of July 1, Assistant Secretary Edwin Willits, of the Department of Agriculture, has issued a circular of instructions for those who intend to participate in the trials, which we reproduce as follows:

At these trials each machine or process entered will be required to work at least ten hours, or at the discretion of the board of experts. The working will be either upon green stripped stalks, green stalks with leaves, or upon dried stalks, or upon all three forms, according to the type of the machine. The running will be conducted by Special Agent Chas. Richards Dodge, in charge of fibre investigations, assisted by the board of experts appointed by the Secretary of Agriculture, each company entering the contest to supply the necessary attendants for its own machine, and bear all expense of transporting machinery to and from the place of trial, and the expense of operation, save as noted below.

The department will supply the ramie stalks, the power, and floor space only, machine owners to furnish necessary belting and a split pulley for their power connection; size of shaft two and fifteen-sixteenths inches. A foreman will be appointed by the department, who will have charge of the power, and who will assign space and attend to all mechanical details.

It will be advisable to place machines in position some days prior to the official trials in order to have everything in perfect running order, as there can be no delays. The department will not furnish stalks for private trials made by owners of machines; these can be obtained, however, from Oak-bourne plantation, where the department's supply is being grown, at the government rate per ton. Address Col. Gustave Breaux, No. 5 Carondelet street, New Orleans, La.

The department will take possession of the product of decortication until after the official weighings, reserving the right to hold such portion of it as it may desire for further use and experiment.

Each machine will stand on its own merits in the trial, and be given credit for actual performance without relation to other machines, and without attempt at classification other than as refers to the class of material upon which it operates, and the final report will be made on this basis. No credit of time for stoppage, for readjustment, fouling of the working parts, or breakage will be allowed, the running to be timed by the watch.

Special points to be considered in judging merit are: Continuous running, quantity of cleaned fibre turned out, and quality of ribbons, or degummed fibre. First quality ribbons are those perfectly delineated and decorticated, untangled and without bruises, or in a state more nearly resembling the China grass of commerce. It should be noted in this connection that poorly-cleaned ribbons, with portions of the wood adhering, and with more or less of the brown epidermis in tact, cannot be economically treated in the final processes of degumming and rendering the fibre fit for spinning. Bruised ribbons, likewise, entail similar loss through large percentage of waste in final manipulation.

In entering your machine please reply to

the following questions, an early response being solicited:

1. What is the name of your company?
2. By what name is your machine designated?
3. What horse-power does it require?
4. What class of material is it specially constructed to work upon?
  - (a). Green stalks with leaves.
  - (b). Green stalks stripped of leaves.
  - (c). Dried stalks.
5. How many attendants does the machine require, including those who handle the stalks and remove the fibre?
6. What actual floor space does the machine (or apparatus for process) require?
7. Give in brief a description of the construction of the machine or apparatus, stating what it is claimed to accomplish.
8. Do you agree to all the conditions as set forth in the above circular?

Shipments may be made to the Sugar Experiment Station, Prof. W. C. Stubbs, director, Audubon Park, New Orleans, La.

## Cotton Movement and Consumption.

The New York Commercial and Financial Chronicle presents the following summary of cotton movements for June and for the ten months of the season to July 1 in 1890-91 and 1891-92:

Bales.	1891-92.	1890-91.
Gross overland for June.....	49,648	42,345
Gross overland, ten months.....	1,737,513	1,601,270
Net overland for June.....	25,941	20,585
Net overland, ten months.....	1,172,335	1,015,880
Port receipts in June.....	101,161	101,834
Port receipts, ten months.....	7,047,297	6,856,884
Exports in June.....	194,308	176,771
Exports, ten months.....	5,698,209	5,648,500
Port stocks on June 30.....	550,130	299,422
Northern spinners' takings to July 1.....	2,112,610	1,935,014
Southern spinners' takings to July 1.....	666,000	523,000
Overland to Canada in ten months (included in net).....	68,794	61,384
Burnt North and South in ten months.....	36,603	9,108
Stocks at Northern interior markets July 1.....	13,111	3,079
Came in sight in June.....	166,702	110,719
Amount of crop in sight July 1.....	8,914,232	8,487,764
Came in sight balance season.....	.....	167,754
Total crop.....	.....	8,655,518
Average weight of bales.....	498 98	502 36

## Wood Fibre that Can Be Spun.

Professor Mitscherlich, of Freiburg, has patented a method for the isolation of the fibres of wood so that they can be spun and yield yarns capable of being woven. For this purpose the wood is cut into thin strips, which are repeatedly passed between roughened rollers, so that they are bent and cracked in many places. There is thus produced a mass of material which can easily be divided across, but is with difficulty torn in the direction of its length. The mass is thus wrought until it is finally changed into a completely fibrous substance. This fibrous stuff is dried and treated between the rollers until it is completely disintegrated into its fibres. The fibres are very delicate and soft, and yet very strong. They can be worked up and spun like raw cotton. Since fibres made of wood (as is shown by paper produced from cellulose) take colors very well, it is only a question of the cost of production, says *Rosen's Journal*, as to whether this material will or will not prove a formidable competitor to cotton (!)—*Textile Mercury*.

## Southern Cloth for a Northern Mill.

A dispatch from Fall River, Mass., to the Boston Advertiser says: "Fall River parties have just closed a contract with Lynchburg Cotton Mill, Lynchburg, Va., securing the production of 150 looms to November 1. This cloth is to supply the extra demands for printing, and will be received weekly as fast as the production of the looms will allow. This same mill has also contracted to furnish 100,000 yards of 40-inch muslin for bleaching and 200,000 yards of 4-4 goods for Western demand. The demand upon their capacity is so

great that the directors have decided to again increase their machinery, this time one third, and the purchases are to be made immediately. Although this mill is comparatively new, it has been fortunately under superior management and has well earned their reputation as the leading 'fine goods' mill in the Southern States. It was designed by Messrs. Lockwood, Greene & Co., Boston, and was organized throughout as a strictly first-class mill in every particular. The recent change in working hours proposed around Fall River has influenced a number of transient employees to go South, and quite a colony are now at Lynchburg. The original intention of making this mill the beginning of a 50,000-spindle plant bids fair to be realized."

## Southern Textile Notes.

THE stockholders of the United Silk Manufacturing Co., of Hagerstown, Md., held an election for directors on the 8th instant, and the following were elected: S. M. Schindel, P. A. Brugh, Jonas Winter, Jno. L. Nicodemus, C. E. Wise and E. A. Fry. The directors organized by electing S. M. Schindel, president and manager, and P. A. Brugh, secretary and treasurer.

THE bagging factory at Meridian, Miss., is likely soon to be put in operation by the Messrs. Thompson, of Illinois. Mr. Chas. Rubush, who held the plant under a mechanic's lien for some time, can doubtless furnish information to interested parties.

THE Tuscaloosa Manufacturing Co. has recently added 2,000 Lowell & Sawyer spindles, ten Whitin cards and Higgins intermediates, a duplex fire pump of 500 gallons per minute and twelve fire hydrants, a new engine of 400 horse-power, electric lights and automatic sprinklers. This plant operates 12,000 spindles and 320 looms, and its output consists of sheetings, shirtings, checks, plaids, rope, twine, etc. Mr. B. Fiedman is treasurer and manager.

THE management of the Lynchburg (Va.) Cotton Mill has authorized the purchase of 5,000 spindles and 200 additional looms for its plant. These additions will necessitate the employment of seventy-five additional hands. The mill is now working 300 hands and running 600 looms and 20,000 spindles, and for the last six months has earned a dividend of nearly 5 per cent. on its capital stock, which is \$300,000. The bulk of the product of the looms has already been contracted for by Eastern parties for shipment to Providence, R. I., and Lowell, Mass.

THE citizens of Prosperity, S. C., are endeavoring to organize a stock company to erect a cotton factory in their town. Mr. A. H. Kohn was elected chairman of a meeting recently held to further the project, and the matter is now in his charge.

THE Riverside Cotton Mills, of Danville, Va. have placed orders for five compressions of Lazell patent for their slashers, made by H. C. Lazell, of Providence, R. I., manufacturer of reeds and harnesses.

THE Fort Mill (S. C.) Manufacturing Co., manufacturers of staple gingham, is arranging to put 400 additional spindles in its cotton mill. The mill's product is now finished in Philadelphia, but as soon as practicable a finisher will be put in.

THE Owensboro (Ky.) Woolen Mills Co. is now negotiating for 100 sewing machines to be used in the manufacture of jeans and cassimere clothing of all kinds, and expects to have its mill in operation by October 1st.

IT is stated that a company has been organized to build a dam across the Ocmulgee river eight miles above Macon, Ga. A canal one mile long, fifty-three feet wide and eight feet deep will be cut to carry the water to a large power-house, where the fall of water will be twenty-four feet. This

will pass through turbine wheels connected with dynamos, and from them will be furnished both light and power in the city of Macon. One hundred and fifty thousand dollars is the amount of capital to be invested.

## WORLD'S FAIR NOTES.

What Is Being Done Towards Representing the South at Chicago.

## VIRGINIA.

The Virginia Board of Managers have issued handsome certificates in the shape of lithographs of Washington's home at Mt. Vernon to all who contribute money to the erection of the State building at Chicago. The architect preparing plans for the building estimates its cost at \$16,000, which the ladies' auxiliaries, headed by Mrs. Lucy P. Beale, hope to raise by popular subscription.

The committee on agriculture, in a circular, states its desire that the different counties send exhibits in this branch to the State fair, there to be arranged and preserved for the exposition at Chicago.

## FLORIDA.

The board of governors of the Jacksonville Board of Trade has urged the county commissioners of that county to make an appropriation of \$2,000 toward Florida's World's Fair fund.

## WEST VIRGINIA.

The Board of World's Fair Managers for West Virginia has determined to issue an illustrated descriptive hand-book of the State for free distribution at the fair, and Col. W. N. Chancellor, president, has given the work of preparing it to Geo. W. Sammers, formerly of the Charleston *Gazette*. It will treat in every detail of the natural resources of the State, of its manufactures, industries, the many advantages offered to home-seekers and for the investment of capital, and the great growth and development attained by West Virginia in the past few years, together with prospects for the future. No pains will be spared to make it complete, accurate and exhaustive. The book will contain 300 pages, and 40,000 copies will be distributed free of charge. Mr. Sammers will commence work at once, making Parkersburg his headquarters, and will visit every county in the State in search of information and data for the book. This will be a valuable means of making known to prospective settlers and investors what great opportunities await them in West Virginia.

## MARYLAND.

At the meeting of the Maryland World's Fair Commission this week, Col. J. Thomas Scharf submitted a report of the progress made since the last meeting. He stated that Messrs. Hopper & McGaw, of Baltimore, had consented to get up an exhibit of the food products of the State, to be neatly and attractively arranged in glass jars, occupying a space of about twelve feet square. It was suggested that there be placed on the Maryland building a fac-simile of the Washington monument at Washington, D. C., made of Beaver Dam marble, nine feet high, which is now in the land commissioner's office at Annapolis. There will also be in the building fac-similes of the Washington and Battle monuments at Baltimore, Baron de Kalb monument at Annapolis, and Calvert monument at St. Mary's. Firms have also agreed to exhibit coal, bricks, terracotta, etc. Colonel Scharf was authorized to have a list made of the native stuffed birds now owned by the State and what others would be required to complete a collection. Eight hundred yards of cotton duck have been contributed by the Mt. Vernon Mills for the State building. The contractors are making fair progress on the construction of this building at Chicago.



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BALTIMORE, JULY 15, 1892.

### Notice to Advertisers.

*The last forms containing advertisements are closed on Tuesday afternoon. New advertisements or changes should be received not later than Tuesday noon to ensure attention in the issue bearing date of the following Friday. Reading matter should be in our office on Wednesday, although late news can be received early Thursday morning.*

THE Talladega (Ala.) furnace, recently sold by order of chancery court, is an illustration of what poor financial management can do with a good property. This plant is equipped as well as any furnace in the country; the company owns large tracts of ore lands in which lies some of the best brown hematites of the South, and there are excellent facilities for shipping, Talladega receiving the same freight rates as Birmingham. It was an "English" company with an Englishman as general manager, and under him a large enough staff of officers to run a railroad. Every economy was neglected and the company failed. It is to be hoped that the present purchasers, who were members of the old company, will try the experiment of running on business principles, since the other plan proved unsatisfactory.

### Supply of Wrought Scrap in the South.

There is a general impression among iron men and some technical journals that sufficient wrought scrap to supply a rolling mill cannot be secured in the South. The fact that there is but little scrap offering has been taken as an indication of short supply, and no attempt has been made to find how much might be secured if a demand arose for it. Taking Chattanooga as a center, there can be reached within a radius of 150 miles Birmingham, Atlanta, Knoxville and Nashville, besides the many smaller towns lying between them. All of these cities, and Chattanooga itself, have in them many industrial establishments from which a certain amount of scrap comes, each of the small towns produces some and the nine railroads entering the city produce large amounts.

As there is not any demand for scrap

iron in the South, railroads carry it to their Northern connection, but if a steady demand arose in a Southern city conveniently located to the railroads a supply could be drawn from every State on the Gulf, as well as from Tennessee and the Carolinas. The Richmond Terminal system carries its scrap iron North, as does the Illinois Central, the Louisville & Nashville and other lines. If they can afford to do this they can more readily afford to transport it a less distance and deliver it in a Southern city. It is a fact undoubtedly that no one city in the South could supply a sufficient amount of scrap to keep a mill stocked, but it is not a fact that sufficient scrap cannot be had in these cities if an effort is made to turn the supply in that direction.

### The Balance-Sheet in Cotton Spinning.

An interesting commentary on the profitability of spinning in the Oldham district, England, is presented in the figures given in a recent issue of the *Textile Mercury*. The spinning district of Oldham is one of the longest established in England, and the operators have added every known improvement to their machinery in order to decrease the manufacturing cost. For some years past there has been a gradual decrease in profits, and last year the change became particularly marked, 101 companies earning but \$193,790, or \$1.918 each. This year forty companies, operating 2,981,766 spindles, have earned \$479,435, or \$11.085 each, or about fifteen cents per spindle. The maximum earning was \$47,865 with 70,772 spindles, and the minimum \$200 with 49,604 spindles. But fifty companies in the district, operating 3,479,186 spindles, had a net loss of \$1,188,305, or thirty-three cents per spindle, the maximum loss being \$90,235 with 70,000 spindles, and the minimum \$1,870 with 9,252 spindles. This represents a net loss to the district, ninety mills, of \$708,870.

Comparing this state of affairs with the growing prosperity of mills in the South shows what a great advantage there is in being at the source of supply. During this past year there has been a greater activity in Southern mills than at any previous time, and, as the MANUFACTURERS' RECORD has frequently pointed out, there is not a cotton mill in the South to-day which cannot earn a profit if managed with due business prudence. Many mills have old-fashioned machinery which prevents them from producing as cheaply as others better equipped, but in time this will be replaced, more mills will be erected and the South will lead the world in the manufacture of cotton goods, as it now does in the production of the staple. If our English cousins who have had such unsatisfactory returns would examine the conditions for spinning in the South they would more clearly appreciate the reason why they did not succeed in the past year and realize that the profits for future years will be even less likely to come to them.

### Take Care of What You Have.

Southern cities and towns that have money to spend in industrial development can make better use of their means in aiding existing establishments than in reaching out after new concerns. A thousand dollars used to enable a factory to extend its business will usually produce a greater result and benefit the community to a greater extent than three times as much money expended in building up an

entirely new plant. There are comparatively few manufacturing establishments in this country that are run to their full capacity, the reason in a large proportion of cases being the lack of sufficient capital. This is particularly true of the industries in the South, and the fault lies largely with those who induced the location of the manufacturing establishments as aids to town development. There has been, and still is, an unfortunate ambition among town development companies in the South to secure large and varied assortments of industries with little regard to their financial strength and stability. Many of those who have secured the establishment of new industries in Southern towns or the transplanting of old ones have considered their object accomplished when the wheels begin to turn and the goods go on the market. Then they start on a hunt for another new concern.

We have in mind several painful illustrations of this mistaken policy in the shape of towns that have a number of well-built and well-equipped factories, large enough to support a good working population, but all standing idle for lack of the lubricant without which their wheels will not turn—money. All the capital of the manufacturers, all the funds of the townspeople, expended in establishing the largest possible number of factories, and nothing left for operating capital. The show of industry has been made in a list of numerous establishments, but it is a show only. What credit to a town is there in a lot of idle mills, or a large number with capital and business sufficient only for a few? Mere numbers count for nothing save to befool innocent investors in town lots who are reliant upon what they see in print only. It is vastly more to the credit and prosperity of any community to have one well-managed factory, with capital sufficient for its needs and all the business its capacity will admit, than to have ten manufacturing establishments running on part time and handicapped by insufficient capital.

In promoting the industrial development of any town the establishment of an industry suited to the location is the first step of importance. Then, instead of an endeavor to secure another industry, the next step is to see that the one first established has capital enough to conduct its business. If money is needed by this concern it is far wiser to put development funds there than in a second establishment, with a chance that both will be crippled by lack of means. It is just at this point that so many promising towns have been stripped of all their possibilities, because men have failed to realize that it is better to be sure of what you have than to risk it for the uncertainties of something you have not.

There are very few manufacturing establishments in the South that could not double their business by increasing their capital, say 25 per cent. To start another similar concern in business, however, would require an amount of capital equal to that employed by the first, and then neither would have reached the limit of its capacity. Let us assume a concern with a capital of \$100,000. With \$25,000 added the business could be doubled and as much accomplished for the community as by the expenditure of \$100,000 in another plant.

A word of advice, then, to those who are seeking new industries for Southern towns. Before you offer a dollar to any new enterprise see to it that the industries already existing in your locality have all the capi-

tal they can use to advantage. If they need money to extend their business do not think of any new enterprises until this want is supplied. Remember that the mere numerical strength of your industries counts for absolutely nothing in honest business, but that the volume of their business and their financial stability amount to everything. One good, strong manufacturing concern is of more benefit to a community than a dozen weaklings. When you have an industry take care of it.

### Bad Business for Honest Men.

The manner in which men of national reputation for business capacity and integrity permit their names to be used to ensnare confiding investors into placing their money in worthless and fraudulent schemes is the most disreputable practice that has ever been applied to the booming of questionable Southern enterprises. One of the most notorious cases of this character is the Georgia-Alabama Investment & Development Co., of Tallapoosa, Ga., which bought out and succeeded the old Tallapoosa Land, Mining & Manufacturing Co., and which is now enjoying unenviable prominence by reason of the legal proceedings of its stockholders to recover their invested money.

The Tallapoosa company (as it was termed) started some years ago with a nominal capital of \$4,500,000. Shares were \$10 each, but as an inducement for small investors to come in promptly, some were sold at \$3.50 per share. The officers were: President, Gen. Benjamin F. Butler, of Massachusetts; vice-president, ex-Congressman Logan H. Roots, a banker, of Little Rock, Ark.; treasurer, J. W. Hyatt, ex-treasurer of the United States. Of the directors nearly all were equally prominent, some being senators, bankers, public officials and capitalists. A strong effort was made to attract attention to the place by extensive advertising and excursions and other means calculated to attract the public attention, and owing to the prominent names at the head of the concern, which seemed a guarantee of its financial soundness, hundreds of persons of small means invested their money and have been steadily hoping for some return. So far as can be ascertained, the only return that has ever been made was a 2 per cent. scrip dividend in October, 1891, which was good for reinvesting, but not for cash.

The property cost the stockholders, it is said, \$1,500,000, and the total indebtedness at present, according to the receiver, is \$150,000. The management of the old company spent about \$48,000 a year in salaries and other expenses for work which the receiver, who now has charge of the property, says could have been done for \$6,000 or \$7,000. The only industries of consequence are an iron furnace costing \$190,000 and a glass works costing \$63,000. These operated for a short time and then shut down.

How much money was received by the company cannot, of course, be ascertained from the outside, but it is evident that every cent which has been put into the plant has been squandered by those in charge of it. The entire matter is now in the hands of the receiver, and at a recent meeting of the stockholders, called at the Palmer House in Chicago, he stated that "as to the value of the property I am confident that with time the stockholders will get out all right. The recklessness and extravagance of the promoters of the scheme are responsible for its collapse."



This is undoubtedly the case, but since it has been done, is there no recourse against those who by their "recklessness" defrauded the stockholders? Does the law put such a premium on fraud and dishonesty that the men who engineered the scheme cannot be reached? If so, it is a sad state of affairs. General Butler has the reputation of being a sharp and shrewd lawyer, and it is altogether improbable that either he or the other prominent men associated with him were ignorant of the actual condition of the work and financial mismanagement at Tallapoosa. It is very consoling, undoubtedly, for them to point to others as the guilty ones and say they were unaware of the condition of things, but this is no excuse. It merely adds to their disgrace. They should have known, and are just as guilty and responsible as though each transaction was conducted by them in person.

It is proposed now to reorganize the company and capitalize it at \$250,000. After paying its debts, which are estimated at \$150,000, there will be about \$100,000 with which to start up the furnace and glass works, and the receiver thinks that these two enterprises can be made "to pay 10 to 12 per cent. interest a year." Undoubtedly the 1,500 stockholders of the company would be very much pleased to have it reorganized, but to do it means that they must put their hands in their pockets again and pay for it. As the larger proportion of them are people of small means, they cannot do this, and after the fraud which has been perpetrated upon them, it is doubtful if they would wish to do so if they could.

It is time to call a halt to schemes of this kind and to place the responsibility where it belongs. A good sound legal lesson on the personal liability of each and every promoter of collapsed schemes would be of substantial benefit to the South, assuring future investors of protection and breaking up the fraudulent and thieving schemes to draw money from those who have not sufficient technical knowledge to know what is right or wrong, or who are led on by the public prominence of those who allow or sell their names to be used on the prospectus. These schemes are in every way hurtful, and tend to cast the shadow of suspicion on every enterprise or development in the South without regard to its actual merits. Many of these schemes are carried on by people who know that they are trying to defraud others, and who think their sole safety lies in the fact that there are such a large number of stockholders that it is not likely that they can get together and prosecute the guilty ones.

#### GENERAL NOTES.

##### Brief Mention of Various Matters of Current Interest.

THE Crescent Manufacturing Co., of Chattanooga, Tenn., is using hickory fibre in place of rattan and broom corn for making heavy brooms and brushes. The fibre is made by the Hickory Fibre Co. in Tennessee and is said to be stronger, tougher and wears better than any other material. It is made in three grades—coarse for street sweepers, medium for street and heavy brooms, and fine for house brooms, scrubbing brushes and similar articles.

IN accordance with the law passed in several States, railroad cars passing through them must be fitted with standard air brakes and couplings. In order to familiarize employes with the method of work-

ing these a car has been fitted up in which the entire system is placed inside and is carried from one road to another in charge of a competent man, who explains the operation to employes sent in to him. This car is now on the Louisville & Nashville Railroad, but will shortly be sent to New Orleans to instruct railroad employes there as to the means of applying the brakes and coupling and uncoupling cars.

THE Georgia Road Congress will meet in Atlanta on the first Wednesday in August. The officers are: President, Hon. W. J. Northen; secretary, W. G. Whidby; vice-presidents—first district, H. P. Smart; second district, O. A. Barry; third district, G. W. Jordan, Jr.; fourth district, W. J. Weeks; fifth district, Dr. J. W. Nelms; sixth district, Hon. W. A. Huff; seventh district, J. O. Waddell; eighth district, Prof. C. M. Strahan; ninth district, J. W. Robertson; tenth district, O. H. P. Beall; eleventh district, A. T. Putnam.

At a recent meeting of the Mantahala Marble & Talc Co., in Atlanta, the directors reported the company in a good financial condition. Work is to be commenced at once on their property at Mantahala, N. C., and it is thought the undertaking will be a profitable one. Col. Charles Boech will act as engineer in superintending development.

NOR long ago some destitute German immigrants were taken to farms in Prince George's county, Md., where they hired out as laborers. Since then their number has been added to by other immigrants, and there are now about twenty-five families of them at work. These people have proved to be the best of laborers, thrifty and contented, and those who employ them are thoroughly well pleased. An effort is to be made to induce others to come there instead of going West, as in Maryland there are hundreds of acres of good land which, from its nearness to large cities, is eminently suited for truck or other classes of farming. The Germans are naturally a thrifty and industrious class, and their location on these lands will be both a benefit to themselves and to the farm owners, as there is now great difficulty in securing efficient help.

#### Recent Publications.

REPORT OF THE CHIEF OF THE DIVISION OF FORESTRY FOR 1891. By B. E. Fernow. 229 pages, with maps and engravings. Government Printing Office, Washington.

In this report Mr. Fernow has taken up the many matters of interest in his department and treated them in the careful and conscientious manner noticeable in his work. Several new points in forestry are discussed, and one of particular interest is the poisoning of street trees, which it is thought is largely due to smoke. Forest planting experiments are considered and the best means of carrying them out. The various Southern pines are thoroughly described and illustrated. The statistical tables and estimates of supply and consumption are of great interest and value.

RAILWAY CAR CONSTRUCTION. By William Voss. 177 pages. Illustrated. Published by R. M. Van Arsdale, Morse Building, New York.

This is the first book which has ever been prepared upon this subject, and the thorough and masterly treatment of each detail gives it a high place among text books. The construction and dimensions of freight cars, class of timber used, various kinds of trucks, with dimensions and other detailed information, are presented with a thoroughness which enables the reader to judge which of the various forms is most suitable for any specified purpose. Passenger cars, parlor cars, the trucks and general fittings are all accurately described and illustrated. The writer deserves the greatest credit for the completeness of his work and the excel-

lence of the drawings and descriptions. To the car builder and railway mechanic this book will be invaluable in showing methods of construction.

SKILL IN TRIALS. By J. W. Donavin, author of Modern Jury Trials, Trial Practice, Tact in Court, etc. Published by Williamson Law Book Co., Rochester, N. Y.

This book will prove a helpful companion to the young lawyer, and is also well calculated to stir up some new thoughts in the experienced attorney. Its contents present a variety of civil and criminal cases won by the art of advocates, and incidents illustrative of the skill of Webster, Choate, Beach, Butler, Curtis, Davis, Fountain and others are given. A number of unique trial stories that have been successfully used in persuading a jury and snatching legal triumphs from apparent defeat are also contained in the book.

SOUTHERN WOMEN IN THE RECENT EDUCATIONAL MOVEMENT IN THE SOUTH. Rev. A. D. Mayo, M. A. 300 pages. Circular of Information, No. 1, Bureau of Education. Government Printing Office, Washington.

Dr. Mayo here treats at length the efforts of Southern women to build up schools in the South, and points out some of the faults which have heretofore been prominent. The education of the negro is fully and thoroughly treated and due credit given to the noble efforts of women in this work. A large part of the volume is given to Southern women in the Southern common school, and a great deal of useful information and some statistical tables are presented.

#### A Cup of Carolina Tea.

[From the Charleston News and Courier, June 21.]

During the past week or ten days Mr. Henry Cottam, late of Ceylon, and for twenty-five years a large coffee and tea planter in that island, has been inspecting Dr. Charles U. Shepard's tea gardens at Pinehurst, Summerville. Mr. Cottam is the author of "Tea Cultivation and Manufacture in Assam," a valuable work, published by the Ceylon Observer-Press, and is one of the best living authorities upon the growing and manufacturing of tea and coffee.

Mr. Cottam was seen by a reporter yesterday morning as he passed through Charleston en route for Philadelphia. Upon his return North Mr. Cottam will prepare for publication an exhaustive article upon the possibilities of tea culture in South Carolina.

Mr. Cottam said yesterday that it afforded him great pleasure to state with emphasis that in his opinion tea cultivation and manufacture on Pinehurst estate at Summerville was a great success. This statement, he said, would apply to the growth of three-year-old plants and to the leaf gathered and manufactured from them during the past week. The girls and boys employed on the farm pluck with care, the men rolled efficiently and the American evaporators fired successfully, giving a low temperature for the fine Orange Pekoe and a high temperature for the Flowery Pekoe and Pekoe Souchong.

The coarse tea drawn off of the above three first-class grades is an average marketable article, good in the cup, and a saleable black tea. Mr. Cottam said that he had sifted the four grades of tea through sieves, the mesh of an inch, suited to their quality, the No. 1 Orange Pekoe being put through a No. 14, or the fourteenth part of an inch, the No. 2 Flowery Pekoe through a No. 8 and the Pekoe Souchong through a No. 4. Each of the above highly superior teas contained golden tips.

Mr. Cottam said that it had been very gratifying to him to find such good material to work upon and such a painstaking gentleman as Mr. Shepard to work with. He was, he said, returning to Philadelphia, but in the event of Dr. Shepard, or any pioneer in the tea culture, requiring any information or practical advice, he would

be glad to return to South Carolina again and render them any assistance in his power. In the meantime, he said, he would advise all the tea growers to use only the best Assam hybrid tea seed procurable, avoiding a low jut (quality) China bush. The low jut China bush generally runs to seed at an early age, whereas the Assam hybrid flushes and pays better in cultivation.

Dr. Shepard's bushes, Mr. Cottam said, were a great credit to their owner. They had been regularly ploughed and manured, and the tea is very vigorous and promising.

When asked regarding the expense of cultivation and the gross yield of a crop of tea, Mr. Cottam said:

"By selecting the Assam hybrid plants nearly approaching the indigenous Assam a valuable field of tea will make from 600 to 1,000 pounds of made tea per acre. This is not an over-estimate, and it is frequently done in both Ceylon and India."

Here is the estimated cost for the cultivation of ten acres, the land like Dr. Shepard's being in good condition:

Labor.....	\$900
Manure.....	100
Plucking leaf.....	450
Factory work.....	700
Chests and packing.....	150
Total.....	\$2,300

The hire of a superintendent is not included in the above. In India one is usually paid a pound of tea per acre. From these ten acres, at the very lowest estimate, 3,000 pounds of marketable tea would be gathered, salable at \$1 per pound, giving the farmer a clear profit of \$700, or \$70 per acre. These are bottom figures, and of course a good tea farmer would make much more than this.

Will tea-growing in this State pay? Decidedly, yes; because the high price paid for tea will stand the high cost of labor, and small farmers will find an interesting and profitable crop to substitute for the non-paying cotton. The rainfall here is somewhat deficient, being only an average of sixty inches, but when getting my information at the Observer's office in Charleston the Observer very kindly gave me statistics for the past twenty-two years, and I find that some years were good years for tea-growing, the average being over seventy inches for three years in succession. Then, again, the distance from the equator compensates in some measure. Tea will grow as well in South Carolina with sixty inches of rainfall as it will in Ceylon with ninety inches, Ceylon being only 6° north of the equator. In conclusion Mr. Cottam said that he was speaking as an expert, and gave it as his opinion that tea would be a handsomely paying industry.

In the Journal of the Franklin Institute for July is an excellent article on "The Nicaragua Canal," by George W. Davis. As the writer is general manager of the Canal Construction Co., his statements are particularly interesting, and, with the complete maps of the route selected, give a good idea of what is to be accomplished. F. L. Garrison continues his description of "The Development of American Armor Plate," and illustrates by numerous photographic reproductions. "The Construction and Interior Arrangement of Buildings Designed To Be Used As Theatres" is discussed by C. John Hexamer. In the Chemical Section Dr. Hans von Shombeck presents an article on "The Composition of Liquid Ammonia of the Trade and How to Manufacture Ammonia of Really 99.995 per cent." Other articles presented are: "Effect of External Magnetic Disturbances on Weston Instruments," by C. W. Pike; "Ampere-Centimetre, a Measure of Electro-Magnetism," by Carl Hering; "The Physiological Effects of Alternating Currents of High Frequency," by Prof. E. J. Houston, and "A Graphic Representation of the Magnetic Field," also by Professor Houston.



### Improved Hand Planer and Jointer.

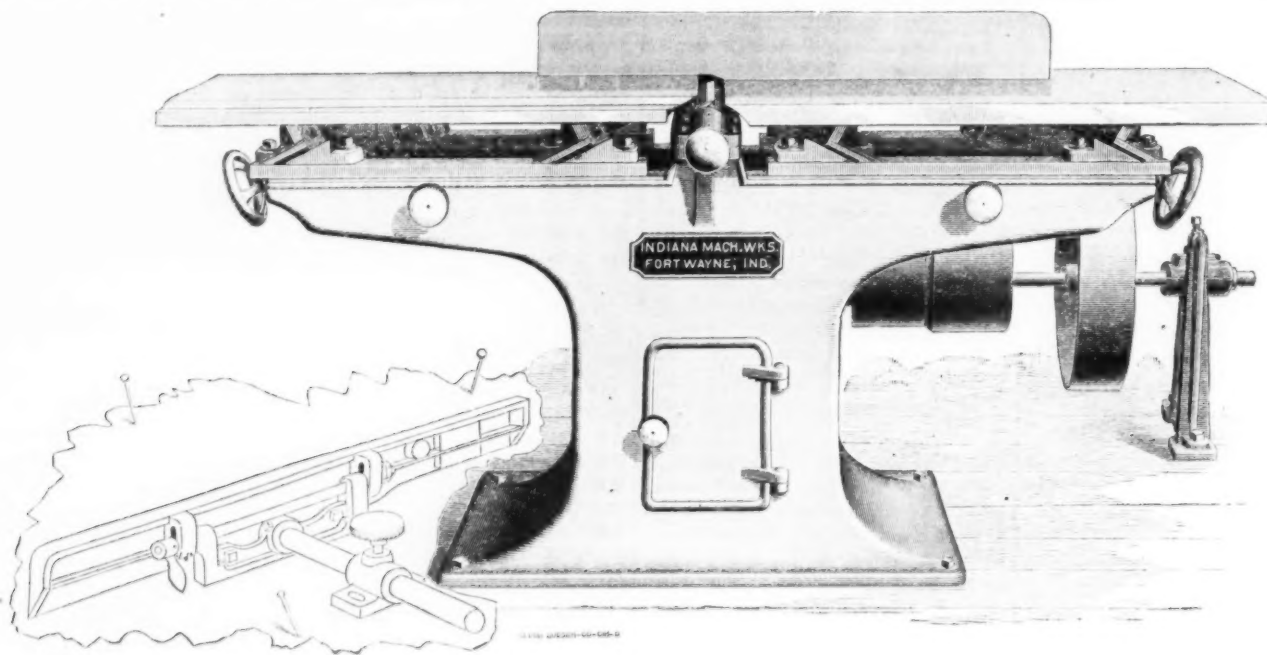
This cut represents a new hand planer or jointer made in four sizes and designed with special care for planing out of wind, beveling, chamfering, grooving, rabbetting, making flat mouldings, etc. The frame is cored out and made in one piece, securing

full width of knife without having to reset a single bolt. The socket or holder is a pivotal one; therefore gauge can be set "shearing" with knives, a feature that is both greatly admired and desired in planing hard, knotty or cross-grained material. The countershaft has take-up bearings, differential loose pulley, and may be set above or below the floor.

an angle, so the knot in the cord will draw toward the bottom of the hole when the weight is attached, and by disengaging the foot the bit drops down out of the way and the stile is pushed forward to the second stop, completing the groove, as is shown on the sample of work at base of machine. The stile is then placed under the feed

### An Improvement on the Steam Engine.

While steam-engine builders have been increasing the efficiency of their engines little by little by additional expansion, condensation, etc., approaching only very slowly a point which, though low, will probably never be exceeded, the gas engine



IMPROVED HAND PLANER AND JOINTER.

in this manner the greatest strength and rigidity possible to be obtained for a machine of this character; the construction of the frame is such as to force the shavings out of the rear underside and so that connections can be easily made with an exhaust fan should this be desired. The door shown affords access to the interior of column which forms a convenient receptacle for tools.

The cylinder is made of forged steel, has large journals revolving in long self-oiling babbitted bearings securely cast to the frame, the caps of same being held down by four heavy steel bolts to each. The end of the bearing on the operating side is provided with a shield to prevent oil from getting on the operator's clothes. The body of the cylinder is of the smallest proportions consistent with strength, therefore describes a very small cutting circle, requires but little power to run it, produces a beautifully and quickly finished drawn cut, prevents slivering, makes a small gap between tables and greatly lessens the danger to the operator. The cylinder pulley is 4x4 inches, and may be belted from any angle.

The tables are heavy, thoroughly ribbed, measure six feet from out to out, and the rear one has a recess planed on one edge, so that rabbitting up to one-half inch deep may be done; the tables are adjustable on inclines with speed and ease by hand-wheels and screws placed convenient to the operator, this movement being the simplest, most accurate and least liable to get out of order. Gibs are used to clamp the tables to the inclines, insuring a close fit, and any wear in the former can be taken up. The inclines are securely bolted to planed surfaces on the sliding frames, and the latter fit into dovetailed planed ways on the main frame. One turn of the small hand-wheels, shown on side of machine permits the tables to be instantly withdrawn from, and free access had to, the cylinder, making it convenient to reset, replace or to use oilstone on the knives.

The gauge is simple, accurate, very long, may be set for straight or bevel work, and is adjustable for planing from nothing to

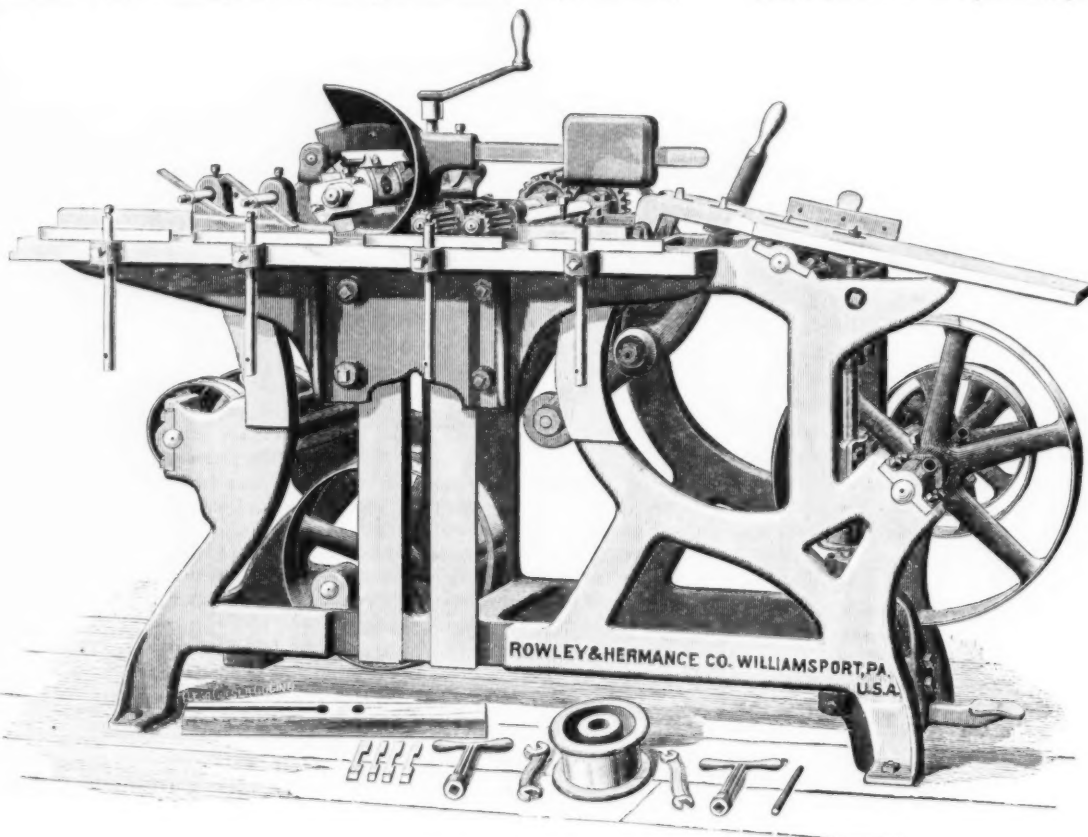
These machines are built by the Indiana Machine Works, of Fort Wayne, Ind.

### Sash Sticking Machine.

The machine shown in the accompanying illustration is built by the Rowley & Hermance Co., Williamsport, Pa., for

boy will operate it, having ample time to plow and bore a short stile while another is being fed through machine. The machine can be used as sash, door or blind sticker, as the attachment is not in the way. The bed drops sixteen inches. The arbors are of steel and run in patent three-part "common sense" journal boxes.

makers have not been idle. Tests are just now being made by impartial and capable experts with a 100 horse-power gas engine (said to be the largest ever built) in combination with a gas generating apparatus, the total combined guaranteed efficiency of which is given as one and a quarter pounds of coal per horse-power



SASH STICKING MACHINE.

plowing and boring sash stiles at the same time they are being run through the sticker.

The operator places the stile on the grooving table and pushes it forward against the first stop, then by movement of the foot treadle the bit bores the stile at

plowing and boring is quickly done, and a

With each machine is furnished one cap head on arbor, one set sash cutters for same, one bit seven-eighths inch diameter, one set grooving cutters and necessary wrenches. Each machine is tested at the works and fully warranted.

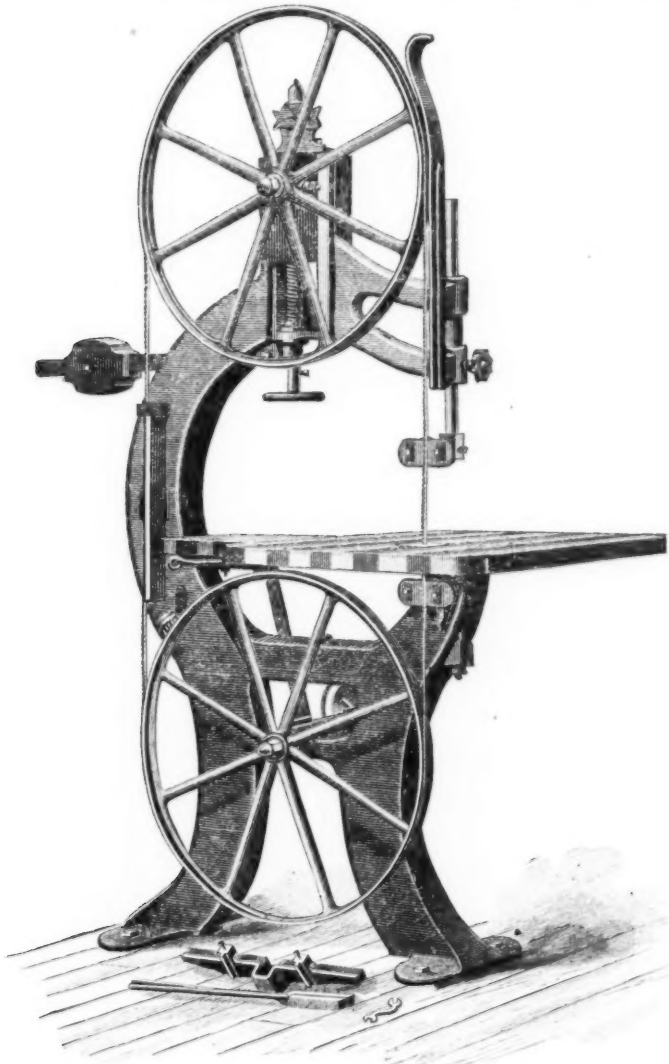
per hour. Whether this refers to brake or to indicated horse-power is not stated, but we believe the former is meant. This certainly is a remarkably good result and makes it probably the cheapest practical method of power production known at present for such capacities. We have good



reason to believe that the results are not overestimated and that the tests will confirm them, if they do not give even a better figure. The gas is obtained from a new apparatus which uses no steam under pressure. A blower is used to force air over the hot water obtained from cooling the gas, and the air thus saturated with vapors from the hot water is blown through the burning coal in the gas generator. Unless objectionable features of some sort are found which will tend to balance the saving of coal, this new generator cannot fail to take a very important place in the production of electricity, for which we are now unfortunately still so dependent on the shamefully wasteful steam engine.—*Electrical World.*

#### An Improved Band Saw.

Messrs. Greaves & Klusman, 180 to 182 West Second street, Cincinnati, are building the band saw illustrated herewith, which



AN IMPROVED BAND SAW.

is meeting with favor among woodworkers.

The frame is cored and cast in one piece and very rigid. The wheels are twenty-eight inches in diameter. It will cut up to twelve inches thick, and to center of a piece fifty-eight inches in diameter. The wheels are perfectly balanced, covered with gum and ground true. The upper box is eighteen inches long, supplied with steel shaft, which can be angled at any pitch desired by a hand-screw on opposite side of wheel while machine is in motion, so as to lead the saw on any path, thus keeping an equal wear on the wheels. The upper wheel is raised and lowered by a hand-wheel, shown in cut.

The weight for giving the tension to the saw can be easily adjusted to give the proper tension according to the size of saw and the work to perform. The guide has proved itself to run any width of saw with equal facility. The steel plate at back

gives the saw an equal bearing and full support, and can be reversed in a moment if so desired. The side guide can be adjusted to any width of saw. The shifter is very simple and effective, and can be placed on either side of pulley without changing shifter lever. The top guide raises and lowers with guide bar to adjust itself to any sized lumber desired to be cut, not exceeding twelve inches. The table is made stationary on this machine, is composed of cherry cut in strips of equal width and thickness, making a very handsome top. The lower bearings are ten inches long; both wheels are keyed to shafts, thus giving full benefit of their bearings.

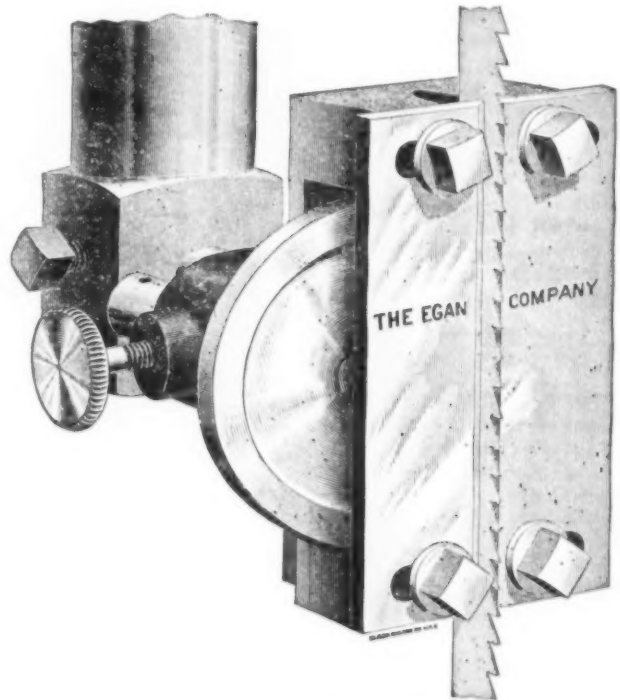
#### An Improved Band Saw Guide.

One of the most useful machines in woodworking establishments is the band saw, and a recent novelty in the way of a new band saw guide, which has been

action of the saw in many ways, especially with respect to breakage and twisting or running. These side guides are adjustable sidewise with a wrench, and are moveable to the blade or from it, as desired, to suit the various widths of saws, so that at all times the saw blade is held rigid the full width and close to the teeth of the same. Devised as it was, especially for the Egan

The president of the company, the inventor of the flexible shaft, Mr. Nelson Stow, while but a little past middle life, has lived to see this child of his brain a standard tool in thousands of the largest railroad, bridge, shipbuilding and machine shops in this country and Europe.

The flexible shaft first took a place as a standard tool in dentistry, then gradually



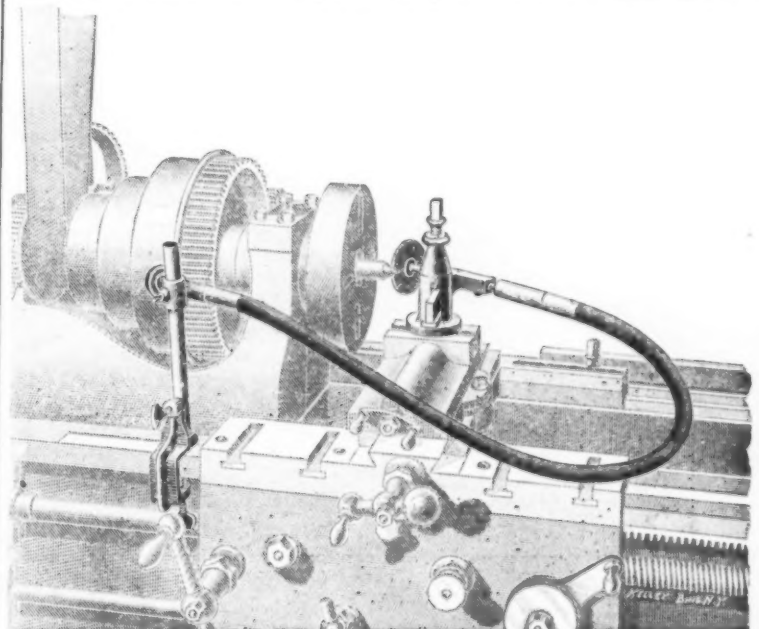
AN IMPROVED BAND SAW GUIDE.

Co.'s own band saw machines, it has determined to offer it to the general trade, so that anyone having a band saw machine of any make can apply it and thereby improve its efficiency to the fullest extent.

#### The Stow Flexible Shaft.

The rapid growth of the Stow Manufacturing Co., of Binghamton, N. Y., inventors and manufacturers of the Stow flexible shaft for all purposes, within the past three years is simply one of the many illustrations of the fact that in spite of

obtained a foothold among machinists, and at the present writing wherever on account of weight or position it is desirable to take the tool to the work instead of the work to the tool the flexible shaft is considered almost indispensable in a well-regulated shop. Owing to the many business interests requiring his attention, Mr. Stow contracted for a term of years with other parties to sell the shaft, though they were always manufactured by him. At the expiration of the contract he concluded to reorganize the Stow Manufacturing Co.



THE STOW FLEXIBLE SHAFT.

cyclones, bad crops, strikes, stock manipulations and a hundred other evils that beset the manufacturer of to-day, a firm that makes what the people want, takes pains that its tools shall be constructed perfectly, who neither whine nor croak, but adapt themselves to circumstances, advertise freely and hustle for business, will get it.

and sell the trade direct. He therefore associated with him two young men who had grown up with the business, the officers of the company at present being as follows: President, N. Stow; general manager, C. C. Warner; treasurer, C. F. Hotchkiss.

With the infusion of new blood business made marvelous strides, rapidly outgrowing its old quarters. More room and



new and improved tools became necessary. As a result of this demand the Stow Manufacturing Co. is just beginning to feel at home in one of the handsomest and best appointed shops in the State.

One of the new appliances that has recently been brought out by this company is the center grinder shown in the illustration accompanying. This simple but very useful device consists of a 3½-foot flexible shaft with a friction pulley on one end, the other being attached to a sliding spindle holding a 3-inch emery wheel. The spindle turns in a tool post the same as an ordinary lathe tool. It is as quickly set as any lathe tool, and can be used on any size lathe without any additional attachments. When desired a bracket is furnished to hold the friction wheel against the cone, which is adjustable to any size lathe up to thirty-six inches. With one of these tools the makers claim that lathe centers can be ground perfectly true in five minutes.

#### Automatic Brick Cutter.

An interesting feature in connection with the study of brick-making machinery is the rapid advance that has been made in methods and appliances, securing convenience and efficiency in an increased degree and reducing the labor and consequent cost of production.

One of the departments in which great advancement has been made is that of

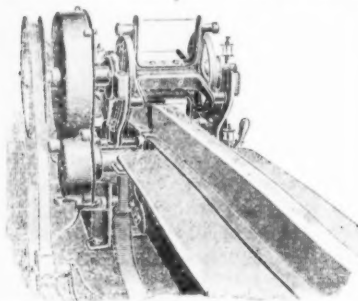


FIG. 1.—PENFIELD AUTOMATIC BRICK CUTTER.

brick-cutting devices, and the stride from the slow and laborious hand cut-off tables to the improved automatics of to-day, with separating carriages and automatic sanders as auxiliaries, has been indeed a great one, and one which clayworkers in general have not been slow to appreciate and take advantage of.

The Penfield automatic cutter which we propose to describe in this article is one which commends itself to the good judgment of the trade generally, first by its simplicity, and further by its perfect adaptability to the work attempted, which it performs with never-failing accuracy and regularity.

The general manner of construction of the table is as follows: The carriage is

cut would be the result; consequently the cut-off is so constructed that the adjustable wire-holders while making the cut travel in irregular-shaped cam tracks (see Fig. 2), moving the wires in the proper direction horizontally and vertically to compensate for the movement of the bar of clay and insure a straight, even cut.

At this point there is another difficulty

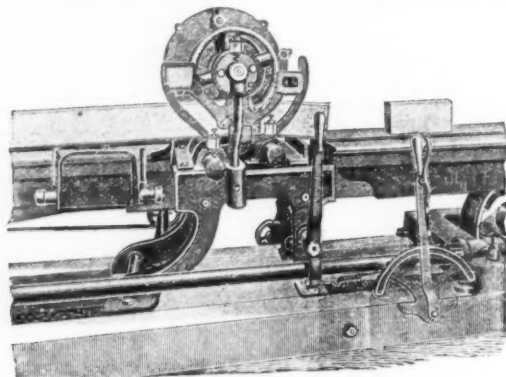


FIG. 2.—PENFIELD AUTOMATIC BRICK CUTTER.

which must be overcome, and in the cutter under consideration the remedy is a very ingenious and effective one. The speed of the cutter must conform to the speed of the bar of clay, as if the reel revolved proportionately slower or faster the bar of clay would be likely to kink or separate and the brick would be cut in irregular lengths. Furthermore, it would be manifestly impracticable to propel the reel entirely by the power the moving bar of clay would exert, as the work would be so great as to cause it to buckle and kink. In the Penfield cutter the happy medium has been hit upon by providing an independent auxiliary reel-driving belt, the tension of which can be quickly adjusted by means of the lever on the opposite side of the cutter. The tension of the auxiliary belt is regulated so as to furnish nearly enough power to do the cutting. The balance of power required is furnished by the moving bar of clay, which thus regulates the speed of the reel and secures uniform cutting. The resistance caused by the weight of the bar of clay and the work it has to perform is just sufficient to retard the flow of the clay through the die a trifle, allowing the corners to fill out nicely, and securing a nice, square, smooth bar of clay.

The apron on the second section of the carriage runs at increased speed; consequently, as the bricks are cut off and pass upon it, they are separated so that they can be lifted from the apron by the ends. (See Fig. 3.)

The Penfield cutter cuts the brick while running upon their narrow surface or edge. Thus if the descending wire should strike a stone in the bar of clay, causing it to deflect, the irregularity would not be apparent at the top or face of the brick where

machine without danger of adhering together.

These features render the work of the Penfield auger machines perfectly automatic in every detail, so that the clay after being fed into the machine requires no further manual labor until the brick, automatically sanded, cut and separated, are received at the end of the off-bearing belt

ready to be placed upon the dry cars or trucks preparatory to being conveyed to the drying department.

The separating carriage can be made of any desired length to secure convenience in handling the brick. In one factory after the brick are cut off and separated they are automatically delivered upon a transverse belt running at right angles to the automatic cutter and delivering the brick at a distant portion of the yard.

Letters patent have already been allowed

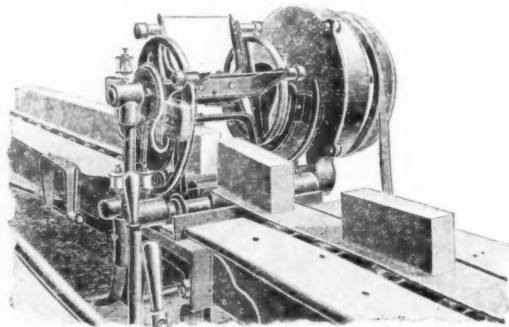


FIG. 3.—PENFIELD AUTOMATIC BRICK CUTTER.

upon this invention, and further patents are pending.

Any of our readers who are interested in this subject will doubtless find it to their interest to secure further details and description, which will be cheerfully furnished by the manufacturers, Messrs. Penfield & Son, of Willoughby, Ohio.

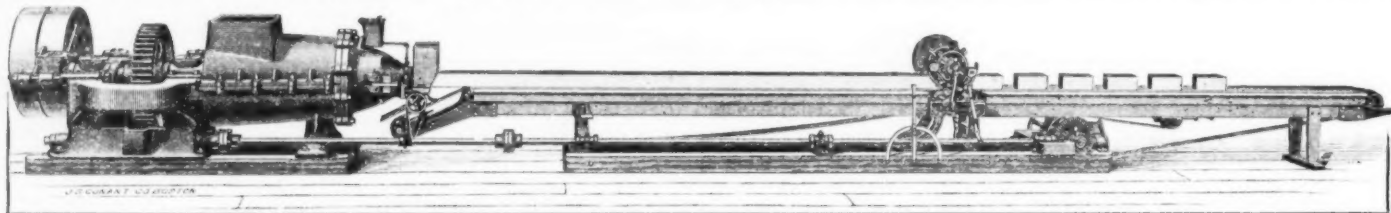
THE *Engineering Magazine* for July has the usual number of excellent semi-technical articles which are at once so useful and popular. Some Lessons in "Rapid

of good roads and the benefit of using the "State's children" for making them. William Nelson Black continues his crusade against New York's riparian rights law in the second number of "New York's Commercial Blight." This article has been forcibly written, fully illustrated, and demands more than passing notice. "Intuition in Machine Designing," by John T. Hawkins, is a pointed reference to the waste of time in teaching college students unnecessary branches and the desirability of their acquiring a practical familiarity with machinery, its construction and motions, at the same time with the theory. "The Progress of Cremation," by John Stover Cobb, calls attention to the advantages of this truly scientific method and is illustrated by numerous cuts from photographs. Joseph Kendall Frietag presents an illustrated article on "The Greatest of all Fair Buildings," which is a description of Manufactures and Liberal Arts building at the World's Fair. "Engineering off Cape Hatteras," by Captain J. W. Walters, describes the use of caissons and breakwaters in building foundations, and gives a clear account of the means adopted to overcome various difficulties encountered. Gustave Halle presents an illustrated and most interesting article on "The Gold Fields of South Africa." "Facts about Rain-Making," by Geo. E. Curtis, and "Practical Hints on House-heating," by Leicester Allen, are two other excellent articles. The departments of electricity, mechanics, architecture, civil engineering, mining and metallurgy are ably filled by those in charge of them. In comments and criticism is an answer by Lewis M.

Haupt to the article on "The Mississippi Problem," by a Southern engineer, presented in the June issue.

#### Electric Lights at Blast Furnaces.

Among other economical and improved methods which are being introduced at blast furnace plants, electricity as a source of light is meeting with general favor. It is surprising that this has not before come into more general use, as the old plan of



PENFIELD AUGER BRICK MACHINE, WITH SANDER, AUTOMATIC CUTTER AND SEPARATING BELT.

made in two sections, the end of the first section being provided with a revolving reel with self-adjusting wire-holders, with wires attached. As the bar of clay emerges from the die it runs upon the apron until it encounters the wire-strung reel (see Fig. 1), which revolves at proper speed, cutting it into brick of uniform length.

It will be readily seen that as the bar of clay is cut while in continuous motion, if the wires moved straight down an angling

the cut was commenced. This is a decided advantage over devices which cut the brick while running on the broad side, as any such irregularity would then be very evident in the face of the brick.

The Penfield auger machines are also provided with an automatic sanding device just in front of the die which evenly and uniformly sands the bottom of the brick, obviating liability of sticking to the off bearing belts, and permitting the hacking of the bricks as they come from the

Transit," by Louis Heilprin, is an article well prepared and worthy of consideration by those who regard this system as a necessary part of the growth and convenience of a large city. The text is taken in New York. It is shown how far the proposed plans there fall short of providing for the future. "Convict Labor in Road-Making," by Albert Roberts, is an ably written explanation of the value of this means of preparing our roads, and figures are not lacking to show the value

using coal-oil torches at whatever places it is desired to light is both expensive, and, considering the amount of light obtained, exceedingly unsatisfactory. Anyone who has had occasion to be around a furnace after nightfall will appreciate the difficulty and even danger in walking about with a flaring and smoking oil torch that barely light a radius of five feet, and beyond which was an almost impenetrable gloom, with only occasional light places where a workman had his lamp. In making up the



pig beds, runners and cinder-yard, and particularly in carrying out iron, a good light is most necessary, and in the stock-house, for the fillers and unloading stock, when this has to be done at night, it is most valuable.

Apart from its first cost a moment's figuring will show that electric lights are cheaper than oil. The torches for the latter are rapidly destroyed or lost, the oil is stolen and many an unnecessary gallon burned. With electric lights suitably located the entire place can be thoroughly

sequent water and oil at the cage pit, and also when the exhaust is allowed to escape upwards the danger in its sometimes obscuring the top fillers' view of the ascending cage.

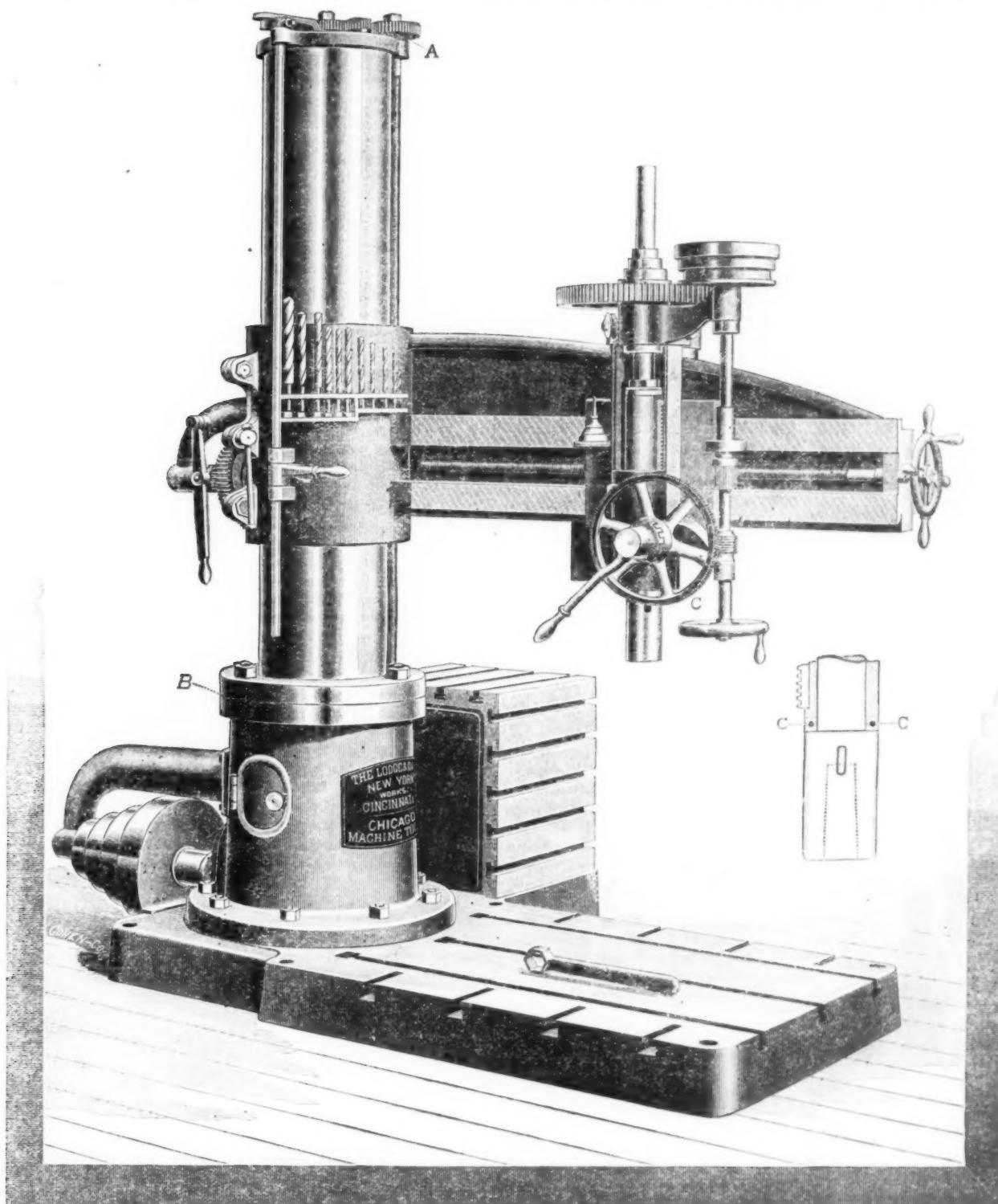
#### A New Radial Drill.

On this page we illustrate a new radial drill with many novel features just brought out by the Lodge & Davis Machine Tool Works, Cincinnati, and designed by their chief draftsman, Mr. Henry Dreses. Radial drills now on the market are of two dis-

the builders of this tool have made the column of great weight and extra large in diameter. The lower part turns in an outside sleeve of increased diameter. The driving cone is placed at the base of the drill, allowing it to be driven by a long belt direct from the countershaft without bevel gears.

The vertical driving shaft is placed in the center of the column, and receives its motion through a pair of mitre gears from the cone pulley shaft. The bracket carrying the bevel gears which slide on the

taken apart without taking down the drill. The thrust bearing of the drill spindle, the column and the elevating screw, denoted by letters A, B and C, are provided with the Ross patent anti-friction ball bearing, which diminishes the friction to a great extent and avoids the oiling and cutting in these bearings. The swinging arm is very rigid and is raised and lowered by power. The drill head has an extra large bearing on the swinging arm and is furnished with the builders' patent quick return, well known from their line of up-



A NEW RADIAL DRILL.

illuminated, absentees cannot so readily escape notice, accidents can be avoided and work done more rapidly and with less difficulty.

It is probable that by introducing electric hoists a further economy could be established. They can be more easily operated, require no more care, and are as certain in action as the steam hoist, with the advantage of bringing all steam into the engine room and avoiding loss by condensation in long lines of small pipe. Still another advantage would be in doing away with the unpleasant exhaust and con-

guished types—one with fixed column and hinged swinging arm, and the other with column swinging around an enveloped stump fastened to the base and extending a portion into the column. The latter class, to which this drill belongs, has the advantage of being less complicated and able to swing nearly the whole circle, but having no back support, lacks stiffness in many cases. This is very noticeable during heavy drilling at the extreme end of the arm, causing the drills to break by punching them through at the termination of the hole. To overcome this difficulty

vertical shaft is attached to the swinging arm, and traverses in a slot provided in the rear of the column. Through this slot projects a short shaft, driven from the inside bevel wheels, carrying a pair of sliding spur gears of different diameters, engaging alternately with the gears on the back shaft shown in the rear of the drill. By this arrangement the change of the speeds is done rapidly and at the same time brings the driving gearing close to the spindle.

The entire internal driving mechanism is accessible from the outside and can be

right drills. These drills are furnished with double friction countershafts arranged for tapping.

THE Frederick (Md.) Elevator Co.'s grain elevator is nearly completed. The outfit of machinery will include four conveyors with an hourly capacity each of 600 bushels, two Richmond cleaners with an hourly capacity of 1,200 bushels, three receiving elevators with an hourly capacity each of 800 bushels and two lifting elevators with an hourly capacity each of 1,200 bushels.



## Notes on Machine Shop Practice.

By Albert D. Pentz.

AT first, in the mental stage of the design for a machine, sit down and write out exactly what you are required to do, and make the statement so clear that another person reading it will understand what it all is about. When thus you have got your ideas of what you are to do in such a shape that others will comprehend them, you will, of course, have the whole subject in order in your mind, and have made not only a good beginning, but the best one. When, again, you have got that far most of the mechanical objections that can be thought out will have presented themselves, some kind of means will have been conceived to meet them, and the design of the machine will be begun before you are conscious of it. After you thus thoroughly understand the whole of what is demanded, as well as the difficulties in the way, is the time to begin the drawing, and not before. Rule-of-thumb design may get results in time, but it is a long way about and life is short. This term "rule of thumb," however, is quite often derisively flung at practical men by those who do considerable of it themselves. For instance, the designer who furnishes his draughtsman with only a crude and ill-considered idea of what he thinks he wants, keeps that unhappy individual drawing and erasing many times longer than should be necessary, because the design has not been properly thought out before it is given him.

THE second step in machine design is to prepare a full and careful sketch of each and every view in the proposed drawing. These sketches, while they may be rough in outline and irregular in shape, must indicate in figures the dimensions and relative proportions of every item upon them. When these sketches have been made the design is perfected as far as it can be on paper. The experienced engineer when he hands them to his draughtsman does so with confidence, and they will be accepted with a respect that oral instructions never receive.

IN present practice it is as proper to call an iron planing machine with a 10-foot opening a tool as it is to call a cold chisel a tool, and it is proper that this should be so. The propriety of making this explanation arises in the fact that most persons who are not connected with metal working, and some who are, make a distinction between power driven tools and such as are operated by the hand. Such persons, in reading a machine-tool builder's advertisement or writings describing shop work, are to this extent mystified by this term, and in so far such matter is not clear to them. It is, however, much easier to say that the scope of the word "tool" is extended from the definitions given it by Webster and Worcester, "any instrument of manual operation," than it is for me to define just how far it has been extended. I should say, however, that a machine which makes a mechanical operation complete or in part, and where such machine holds and guides its own edges, points or dies for cutting or otherwise modifying materials, should be called a tool. Thus an engine lathe is a tool, and a steam engine is not, but they are both machines. To be consistent, a lathe in which the instruments must be guided by hand, a pattern-maker's lathe for instance, should not be called a tool, but a machine; still such a distinction would not be a practical one.

USERS of twist drills who operate them through jig bushings find that at present most drills commercially made are backed off too much. This not only enlarges the sizes of these bushings rapidly, but the drills themselves are reduced in size quite

as rapidly by friction and abrasion. Then the tendency to wear taper on the point is greater than it should be, and whether this be from that cause or not, this tendency is certainly greater than it was some years ago. It cannot be a fact that the competition has become so harassing that makers have become crazy and are committing suicide by the introduction of inferior steel into these necessary tools.

THE man who rides a hobby must enjoy it immensely. It often happens that some one else pays for his amusement, and then it is not so funny as a whole. I am acquainted with the head of the tool department in a large manufacturing company. Six or seven years ago this manager read that all applicants who were received for trial as machinists at the works of Krupp, in Germany, were required, as a test of their workmanship, to file a block of steel square on all six sides. This fad was at once adopted by that manager, who since never neglects an opportunity to exercise it, when in fact, as a bit of practice, it is analogous to nothing in the shop, and can indicate the real value of a workman such as he needs no better than if such a man were expert in forging a horse-shoe. The way the test works, as a matter of fact, is that it accepts a certain class of bench workmen, who are mostly foreigners, unfamiliar with American practice and methods and have to be taught. It again rejects a great many American mechanics, who are in the habit of getting their stock machined to size and shape, and consequently get no great experience in shape filing, but who, nevertheless, are rapid and expert fitters, such as that manager actually needs. In these times, when machined parts are ordinarily produced to fit each other, practically fine surface filers are neither made nor needed in most instances.

A BORING machine on which the work is fastened to a carriage that feeds it to the tool has these disadvantages: The carriage as usually constructed operates on a slide at a considerable distance on one side of or below the center of the boring bar or spindle. This slide must be fitted freely, so as to permit the feeding mechanism to carry it forward without local friction, due to tight gibs. Hence, while this freedom of fit may not be sufficient to permit of the lifting or dropping of the work to and from the bar on the radial line between them by the stress of the cut, it always is sufficient to allow the cutter to oscillate the work sidewise, the slide acting as a sort of pivot. This, of course, produces an oval hole which has the longer diameter on the line from the slide through the center of the boring bar. This defect always is present to a greater or lesser degree in holes bored within such machine. The disadvantages in boring with a machine that feeds its spindle is that the hole made will be smaller in some degree at that point in a hole which is farthest away from the spindle supports, and this defect will always be present in machines where the spindle slides through its bearings. In some recently designed gun lathes, built to bore government cannon, these defects are overcome by housing each end of a boring bar within a traveling head, both of which heads are fed, together with the bar, the whole length of the bore. This keeps the relative distance between the supports and the cutter a constant one. These traveling heads are mounted in guides in the beds of the lathes at points diametrically opposite each other and through the center of the boring bar. Therefore the necessary freedom in the sliding fits will probably not be greater in one direction than in another, and in consequence the holes bored in such machines can be made rounder than in the carriage feed machine and have sides more parallel than in the machine with a feeding spindle,

It is in order for some one to design a commercial boring machine that will overcome the defects stated, and the hint of how to do it is contained in the gun lathe boring machine. There is need of better boring machines.

THE out-board ends of milling arbors should never be supported by a center having the usual lathe taper of 60° or any other similar angle. In milling the expansions due to heat are considerable, especially in the cutter and arbor, and of course the elongations due to this are all met at or in the arbor support, if there be any. The best practice in New England is to make the end of milling arbor outside of the nut of a parallel size and to support it within a bushing. It is presumed this arbor will be hardened and ground to truth, as will also be the bushing, and means to contract the size of the bushing is generally provided. Then when the arbor elongates by expansions due to heat it will merely slide further into the bushing.

## Making Steel Castings in Baltimore.

THE Baltimore Malleable Iron & Steel Casting Co. has recently erected a well-equipped foundry at the corner of Charles and Well streets, in Baltimore, and has embarked in business under very auspicious circumstances. The plant consists of a casthouse 100x50 feet and an annealing-house 100x40 feet. These buildings stand on a lot 120x334 feet at the side of the Baltimore & Ohio Railroad Co., which has a siding in the yard. The casting is done from an air furnace of peculiar type, invented and designed by Mr. Michael Flynn, who was in the employ of Stanley G. Flagg & Co., of Philadelphia, for many years, and who is regarded as one of the best posted men in this line of work in the country. The furnace is horizontal and of the reverberatory type, with grate at one end and stack at the other, the charge lying on a sand bottom in the center and being run out from a tap hole in the side. The roof of the furnace is sectional, and any of the parts can be removed for charging or repairs, making the entire interior readily accessible. The hearth of the furnace is nine feet long, four and one-half feet wide and two feet deep, the maximum capacity being about ten tons per heat. Bituminous coal is burned, with blast furnished by an ordinary fan blower. Three heats can be melted in a day of twenty-four hours.

The best grade of Lake Superior charcoal iron is used without any scrap and castings are made in ordinary molding sand. The castings are hard and very brittle, and after tumbling and pickling they are put through an annealing and converting process which requires four to six days. The castings are packed in cast iron boxes with iron scale, sal ammoniac and other chemicals, and are first brought to a white heat and then cooled slowly. The effect of this process is to change the texture of the metal from a flaky fracture to a fine, granular structure, and the finished castings can be given a cutting edge and will temper. Some very fine castings in the way of small rotary knives for meat cutters, dies for stamping tinware, and numerous small hardware specialties, are being made, and the works have promise of large business.

Patrick Kennedy, the president of the company, was for ten years in the employ of Stanley G. Flagg & Co. in Philadelphia, until he came to Baltimore a few years ago and took the foundry of the Scott Manufacturing Co., then bankrupt. Mr. Kennedy has conducted this plant under the name of the Federal Hill Foundry with much success, and recently, in company with Mr. Flynn, he established the new enterprise above mentioned for the production of malleable iron and steel castings.

## Buffalo Scale Company's New Works.

THE Buffalo Scale Co., of Buffalo, N. Y., has recently moved into a new building on Scott, Illinois and Mississippi streets in that city. For some time past the business of this company has been so large that the old works were found entirely inadequate to keep up with orders, but in the present location there will be sufficient space to meet the growing demand for the goods manufactured by this concern. The main building has the business offices on the lower floor, while above are sample rooms and the scaling room where weights are adjusted. The right wing has the machine shop and grinding room on the lower floor, the carpenter shop and portable and dormant scale and beam scaling rooms on the second, and the paint shop and japanning ovens on the third floor. In the left wing the lower floor is devoted to the construction of wagon and truck scales, the second floor as a storage room for these, and the third floor the storage room for smaller scales and other products. In the rear of the court between the wings is a large and completely equipped foundry, and near this a fire-proof building in which all valuable patterns are kept. A cleaning shop and stables for draft horses also adjoin the foundry. In the center of the court is the power-house, where a large engine, supplied from a Manning boiler, furnishes power for the several shops; this is transmitted altogether by ropes, and so arranged that any part of the shops can be connected or disconnected at will without interfering with other departments. This is one of the largest and best equipped scale works in the country, and the rapid growth of their trade is a good indication of the excellence of their work.

## Are You Going East?

THE Mecca of the Southerner has long been, and still is, the great city of New York. But during the heated term every New Yorker who can makes haste to get away, and his example is fast being followed by his Southern brother.

Where to go? The question embarrasses the situation. All New England is dotted with the most delightful of summer resorts. But having made up one's mind where to go, there need be no hesitancy as to the choice of routes. A sail up the sound, leaving New York at a convenient hour—5.30—after the day's business is done, on any one of the Providence & Stonington Steamship Co.'s magnificent fleet is the thing. Unsurpassed in equipment, convenience, speed and comfort, the ships of this line afford a summer evening of rare pleasure scarcely to be dreamed of a quarter of a century ago.

Besides the advantages briefly summarized, this company offers a choice of routes—a long water route, combined with a short rail route, or a short water and a long rail route, arriving in Boston by either at a convenient morning hour. By a happy combination of railway facilities this company has been enabled to arrange a thousand and one excursion routes to every part of New England at times and rates greatly to the advantage of the traveler.

Those of our Southern friends who contemplate going East will do well to write for the company's Hand-book of Summer Tours to O. H. Brigg, general passenger agent, Providence, R. I., or to J. N. Babcock, assistant general passenger agent, New Pier 36, North river, New York.

THE Newport News Shipbuilding & Dry Dock Co. are making preparations for the construction of another steamship of about the same size as El Norte, recently launched, and El Rio, now in the stocks. Work is being pushed forward on the latter vessel and in completing and improving some parts of the plant.



## IRON MARKETS.

## Philadelphia.

[From our own Correspondent.]

PHILADELPHIA, July 13.

The unsettled condition of affairs in the western part of the State and the mid-summer period of the year are factors which ordinarily are not calculated to infuse much life in the market for iron and steel, and yet there is an undoubted stiffening in the demand for pig iron. Whether this is only a reflection of the improved condition of the demand for finished material, owing to the lessened production, or is due to the feeling among consumers that prices have touched bottom, it is difficult to say. There is no change in the character of the demand, which continues for immediate wants, but consumers are alive to every odd lot of good iron which can be picked up at a low price, and as a consequence the sales in the aggregate are of fair proportions. The demand, however, is not on a par with the production, and while it is believed that stocks of iron at the beginning of the month were not excessive, and were even below the figures of a few months ago, the stoppage of the mills throughout the country will compel a large part of the current output to be held at the furnaces. The leading companies report that they have orders sufficient to absorb a large part of their production, and are not seeking orders for delivery too far into the future at the present unremunerative prices. While the reduction of the prices of Thomas iron was expected, and was in the nature of a readjustment of values, still it has had the effect of settling prices. There is still concessions offered, depending on quantity, date and point of delivery, and character of iron, but prices are now so close to cost of production that both Southern and Eastern furnaces find it difficult to make any better offers than those of the past few weeks. For the general run of business prices are as follows:

Standard Pa. No. 1 X.....	\$15 00@15 50
" No. 2 X.....	14 00@14 50
" Forge.....	13 00@13 50
Southern Coke, No. 1 foundry.....	14 50@15 00
" No. 2.....	13 75@14 00
" Gray Forge.....	12 75@13 25

## Pittsburg.

[From our own Correspondent.]

PITTSBURG, July 13.

"The bottom has fallen clear out of pig iron" is the way the local situation was described to-day by a leading metal broker, and what he says is corroborated dismally by a hundred others. Since the middle of June, when the indications all pointed to a disagreement of greater or less magnitude between the manufacturers and men, the already badly demoralized pig iron market grew rapidly worse in character. At the beginning of July, when it was evident that the mills operated under the scale of the Amalgamated Association would be idle, the depression was so strong that it seemed to impede everything. The many efforts that had been made from time to time to fix up some arrangement whereby some of the best furnaces could be blown out for a time all failed, and the whole business settled down into the expectant attitude maintained with so much resignation by Mr. Micawber. They are still waiting for "something to turn up," but the turning process tantalizingly refuses to come.

During the past week there has been absolutely no business done at all, and even inquiries are very scarce. With the shutting down of all the mills except a few steel plants the outlook could not be worse, as there is no sign at this writing that the Amalgamated Association scale will be signed; in fact, everything points to the opposite, and, as stated in these letters weeks ago, unless one side or the other makes changes that do not now appear probable, no one can tell when it will end

or how long it will last. The men are willing to waive some points, but the manufacturers, in the conferences, have stubbornly declined all terms but their own. Thus the thousands of tons per day required in the mills are being piled up, completely deadening the market. It is not unlikely that the conferences which have been held from day to day will be broken off at any time, and in that case there will be nothing done locally in pig iron for a long time, for a fight now means war to the end. One side or the other must suffer defeat if a fight is declared, as the men are growing tired of having their conciliatory efforts flung back in their faces.

With all the quietness, however, the one surprising thing is the manner in which the furnaces keep on piling up stock. It was announced some time ago that about all the stacks, except those at the Edgar Thomson plant, would suspend operations, but that has since been withdrawn. Only a few, and they are in the Shenango valley, have gone out, and the others will keep right on. The explanation is that prices cannot go any lower at the worst, and that as a resumption of work may see a stiffening in rates, they will go ahead. As stated, the local sales amounted to zero, the only inquiry being made was for Bessemer, and that from the West. Brokers said yesterday that they had not heard of any transactions during the week. The prices have not been touched, and the quotations of last week hold good.

Gray Forge.....	\$12 60@12 75
Mill Iron.....	12 75@13 00
Foundry No. 1.....	14 35@14 60
" No. 2.....	13 35@13 60
Bessemer.....	14 00@14 15

## Wheeling.

[From our own Correspondent.]

WHEELING, W. VA., July 13.

There are forces at work on the iron market, but they do not seem to have produced any very perceptible result as yet. The trouble at Homestead and the consequent demoralization of the Carnegie interests has given the smaller fish in the pool a self-assertiveness that might tend to improve affairs were it not that at this season there are very few mills taking much iron. Even with more assurance among ironmakers, and a feeling that better prices should prevail and might be made to prevail with the proper amount of independence, there can be little accomplished till demand strengthens. This, of course, cannot be expected until some of the big stocks that were purchased during the two weeks prior to July 1 have been partially disposed of. With the mills mostly idle for repairs and stocktaking, and with the furnaces generally running, there is not much reason to expect much improvement in pig iron soon. For the present the pig metal market remains about as it was during June—rather dull and tending slowly downward. No reductions since my last report, two weeks ago, have been noted, but the market remains weak and unsteady.

One big sale of No. 3 foundry was made this week at \$13.75, four months, and another of gray forge, cash, at \$12.75. No. 2 foundry stands at about \$14.00, and Bessemer a shade higher. Most of the soft steel plants are making repairs now, and are not taking their usual amount of pig, but the price stands fairly firm nevertheless.

Prices are about as follows:

Bessemer.....	\$14 00@14 50
No. 2 Foundry.....	14 00@
No. 3 Foundry.....	13 65@13 75
Gray Forge.....	12 75@12 85

## Chicago.

CHICAGO, July 9.

The week, which has been broken by a holiday, has shown a smaller volume of business closed than the one preceding. A fair run of inquiries still continues, these being divided between large consumers who have not yet covered their season's requirements, and who are ready

to buy for six to twelve months ahead when prices suit their views, and the other class of buyers who purchase supply from hand to mouth. Ruling prices remain practically unchanged, though here and there weak sellers have been found willing to make large concessions in order to secure round orders for quick delivery. The consumption of iron in all departments continues heavy and is in excess of that of a year ago, but furnace production is so large that this consumption gives no prospect of any early improvement in price.

Interest continues to center in Lake Superior charcoals. The leading furnaces are maintaining their position and show no signs of weakness. One or two outside companies are offering to take business at cuts of twenty-five to fifty cents below basis held by standard companies, but other manufacturers realize that bottom has been reached on this class of metal, and the existing conditions all warrant maintaining present basis as minimum. Numerous sales in lots from 100 to 500 tons have been made, but the large consumers are in most cases holding off.

We quote for cash f. o. b. cars Chicago:

Southern Coke No. 1 foundry.....	\$14 50@15 25
" No. 2 foundry.....	13 75@14 50
" No. 1 soft.....	13 75@14 50
" No. 2 soft.....	13 75@14 00
Ohio silveries No. 1.....	17 50@18 00
" No. 2.....	16 50@17 00
" strong softeners, No. 1.....	16 50@17 00
" No. 2.....	15 50@16 00
Lake Superior charcoals, Nos. 1 to 6.....	16 50@17 50
Tennessee charcoal, No. 1.....	16 50@17 50
Standard Alabama car-wheel.....	20 00@22 00

ROGERS, BROWN &amp; MERWIN.

## Cincinnati.

CINCINNATI, July 9.

The intervention of the Fourth of July holiday and the labor troubles at Pittsburg and elsewhere have given the iron market a dull tone for the past week. Nevertheless, quite large transactions have been closed; the largest of these have been in Bessemer pig, Lake Superior charcoal iron and Southern coke irons. It is a significant fact that the question of whether now is a good time to place iron contracts has been under discussion in the directory of a good many companies. The feeling is that we must certainly have got about to the bottom. Against this, however, is the fact that demand is light and the market is without spirit. There is nothing in immediate sight that would point to any increase in price. The arguments and conditions are all right, but it does not move.

The weather since last report has been more favorable for crops. Rains in the West have ceased. Corn, oats and wheat are doing well. Where wheat has been harvested, the results are fully up to expectations. Indications are that the railroads will have another great crop to carry. This is sustaining the price of securities against the depressing effect of the withdrawal of American gold and other securities as the natural consequence of renewed silver agitation. The feeling of disgust with Congress over recent proceedings on this question is general in the business community without reference to party. If expressions of all classes of business men, even into the far West, mean anything, the politicians are grossly mistaken in supposing that the people demand free coinage or further silver expansion.

We quote for cash f. o. b. cars Cincinnati:

Southern coke No. 1 foundry.....	\$13 50@14 00
Southern coke No. 2 foundry and	
" No. 1 soft.....	12 50@13 00
Hanging Rock coke No. 1.....	16 00@16 50
Hanging Rock charcoal No. 1.....	19 75@20 00
Tennessee charcoal No. 1.....	16 75@17 00
Jackson Co. stone coal No. 1.....	16 50@17 00
Southern coke, gray forge.....	11 50@12 00
Southern coke, mottled.....	11 25@11 75
Standard Alabama C. W.....	18 00@19 00
Tennessee C. W.....	17 00@17 50
Lake Superior C. W.....	17 50@18 00

ROGERS, BROWN &amp; CO.

## Buffalo.

BUFFALO, July 9.

Several good-sized contracts ranging from 500 to 1,000 tons have been placed

during the week, together with carload and 100-ton lots. The prices are low, but the tonnage is quite large. Lake Superior charcoal still continues to attract more or less attention among buyers.

It is so difficult to say just what the market is, on account of special prices made on the merits of each sale, that we continue to quote as during the past few weeks, though in many cases the prices quoted might be shaded.

We quote on the cash basis f. o. b. cars Buffalo:

No. 1 X Fdy., Strong, Coke Iron, Lake	—@15 75
Superior ore.....	—@14 75
No. 2 X Fdy., Strong, Coke Iron, Lake	—@15 75
Superior ore.....	—@14 75
Ohio Strong Softener No. 1.....	—@18 00
Jackson County Silvery No. 1.....	—@16 50
Lake Superior Charcoal.....	—@17 00
Tennessee Charcoal.....	—@14 65
Southern Soft No. 1.....	—@19 10
Alabama Car Wheel.....	—@20 50
Hanging Rock Charcoal.....	—@20 50

ROGERS, BROWN &amp; CO.

## St. Louis.

ST. LOUIS, July 9.

We quote for cash f. o. b. cars St. Louis:

Southern Coke No. 1 Foundry.....	\$14 25@14 50
" No. 2.....	13 25@13 50
" No. 3.....	12 75@13 00
Gray Forge.....	12 25@12 50
Charcoal No. 1.....	16 00@16 50
" No. 2.....	15 50@16 00
Missouri Charcoal No. 1.....	14 50@15 00
" No. 2.....	14 25@14 50
Ohio Softeners.....	17 00@17 50
Lake Superior Car Wheel.....	18 00@18 25
Southern.....	18 75@19 25
Frick's Connellsville Foundry Coke.....	—@ 5 65

ROGERS, BROWN &amp; MEACHAM.

## Louisville.

LOUISVILLE, July 9.

Very little iron has been wanted in this territory during the past week, but that little was sold at prices never recorded here before. Surely the "false bottoms" have been knocked out and "bed rock" struck at last.

During the usual midsummer shutdown whatever differences existed in regard to wages in this immediate section have been adjusted and the mills will all start up on Monday.

The shutting down of the mills at Homestead will cause an increased demand from the West; but even if troubles there are quickly settled, the opinion is gaining ground that there will be plenty of work for all.

We quote for cash f. o. b. cars Louisville:

Southern Coke, No. 1 Foundry.....	\$13 50@14 00
" No. 2.....	12 50@13 00
" No. 3.....	12 00@12 50
Gray Forge.....	11 25@11 75
Charcoal, No. 1 Foundry.....	15 75@16 75
Car Wheel, stand. brands.....	18 00@19 00

GEO. H. HULL &amp; CO.

## Chattanooga.

[From our own Correspondent.]

CHATTANOOGA, TENN., July 9.

The iron market is steadily improving, the demand for bar iron being especially good. No change in prices on bar or pig iron, but the price on bar is very unsteady. Several mills in this section refuse to take orders for July or August delivery, and one mill is doing the bulk of business for delivery in the above-mentioned months. There is a disposition on the part of buyers to place larger orders. We quote pig iron at the following prices:

Southern Coke No. 1 foundry.....	\$12 00@12 50
" No. 2.....	10 75@11 50
" No. 3.....	10 50@10 75
gray forge.....	10 00@10 25
" No. 1 soft.....	10 75@
" No. 2 soft.....	10 25@

ACCORDING to the census bulletin the total investments in telephone companies in 1890 was \$72,341,736 against \$14,605,787 in 1880, an increase of 395.3 per cent. The gross earnings in 1890 were \$16,404,583 against \$3,098,081 in 1880, and net earnings in the former \$5,260,712 against \$724,378 in 1880. The number of exchanges has increased from 437 to 1,241, and of telephones and transmitters from 108,638 to 467,356; miles of wire from 34,305 to 240,412; employees from 3,338 to 8,645, and subscribers from 48,414 to 227,357. The number of conversations recorded in 1890 was 453,200,000.



## LUMBER MARKETS.

## Baltimore.

OFFICE MANUFACTURERS' RECORD,  
BALTIMORE, July 14.

The movement in local lumber circles during the past week has been only moderate, and the volume of trade about the same as last reported. There is no prospect of any movement during the current month, and transactions will be of a light character in almost every branch of the lumber industry. The outlook, however, is for an improvement in the early autumn, and with the labor trouble ended and other disturbing factors removed, everything points to an active trade demand in the future. Receipts of Virginia and North Carolina pine continue very heavy, and present stocks are more than ample for a slow inquiry. Prices are consequently easy and lower throughout the yellow pine list, and the trade demand light. Cypress is dull, with values about steady, with the inquiry only for choice grades. In hardwoods the situation is unchanged, and, under a light demand, prices continue about steady and unchanged. White pine is moving more freely, and several round lots have been placed during the week at fair values. Furniture manufacturers are not busy, and there is no demand for hardwoods from that source. Box manufacturers are busily employed, and the output continues up to the average for this period of the season. In the shingle market there is a very active demand, while the supply of saps is very light, and prices firm and higher. The light receipts are caused by low water in streams at producing points, and under these conditions the present supply is light. Planing mills are generally all fully employed, and the demand is fairly active for all manufactured stock. The foreign exports of lumber and timber from this port for six months ending June 30, as reported by the collector of customs, were as follows: Lumber 18,085,000 feet, valued at \$516,867; joists and scantling 161,000 feet, valued at \$4,123; hoops and hoop-poles valued at \$21,725; 67,000 shingles, valued at \$539; staves and headings 29,706, valued at \$6,206; logs valued at \$129,788, and 10,855 shooks, valued at \$15,331. The following list represents the prices current at this date:

VIRGINIA AND NORTH CAROLINA PINE.	
4x10 and 12 No. 2, kiln dried.....	\$6 25@ \$6 75
4x10 and 12 No. 1.....	19 25@ 19 75
4x12 edge, No. 1, kiln dried.....	16 50@ 17 00
4x12 edge, No. 2.....	18 00@ 18 50
4x12 edge, No. 3.....	22 25@ 22 75
4x12 edge, No. 4.....	15 00@ 15 50
4x12 edge, No. 5.....	12 50@ 13 00
4x12 edge, No. 6.....	10 50@ 11 00
4x12 edge, No. 7.....	13 50@ 14 00
4x12 edge, No. 8.....	9 50@ 10 00
4x12 edge, No. 9.....	8 50@ 9 00
4x12 edge, No. 10.....	8 00@ 8 50
4x12 edge, No. 11.....	10 00@ 10 50
4x12 edge, No. 12.....	7 00@ 7 50
4x12 edge, No. 13.....	5 00@ 5 50
4x12 edge, No. 14.....	3 00@ 3 50
4x12 edge, No. 15.....	1 00@ 1 50
4x12 edge, No. 16.....	0 50@ 1 00
4x12 edge, No. 17.....	0 25@ 0 50
4x12 edge, No. 18.....	0 10@ 0 25
4x12 edge, No. 19.....	0 05@ 0 10
4x12 edge, No. 20.....	0 02@ 0 05
4x12 edge, No. 21.....	0 01@ 0 02
4x12 edge, No. 22.....	0 00@ 0 01
4x12 edge, No. 23.....	0 00@ 0 00
4x12 edge, No. 24.....	0 00@ 0 00
4x12 edge, No. 25.....	0 00@ 0 00
4x12 edge, No. 26.....	0 00@ 0 00
4x12 edge, No. 27.....	0 00@ 0 00
4x12 edge, No. 28.....	0 00@ 0 00
4x12 edge, No. 29.....	0 00@ 0 00
4x12 edge, No. 30.....	0 00@ 0 00
4x12 edge, No. 31.....	0 00@ 0 00
4x12 edge, No. 32.....	0 00@ 0 00
4x12 edge, No. 33.....	0 00@ 0 00
4x12 edge, No. 34.....	0 00@ 0 00
4x12 edge, No. 35.....	0 00@ 0 00
4x12 edge, No. 36.....	0 00@ 0 00
4x12 edge, No. 37.....	0 00@ 0 00
4x12 edge, No. 38.....	0 00@ 0 00
4x12 edge, No. 39.....	0 00@ 0 00
4x12 edge, No. 40.....	0 00@ 0 00
4x12 edge, No. 41.....	0 00@ 0 00
4x12 edge, No. 42.....	0 00@ 0 00
4x12 edge, No. 43.....	0 00@ 0 00
4x12 edge, No. 44.....	0 00@ 0 00
4x12 edge, No. 45.....	0 00@ 0 00
4x12 edge, No. 46.....	0 00@ 0 00
4x12 edge, No. 47.....	0 00@ 0 00
4x12 edge, No. 48.....	0 00@ 0 00
4x12 edge, No. 49.....	0 00@ 0 00
4x12 edge, No. 50.....	0 00@ 0 00
4x12 edge, No. 51.....	0 00@ 0 00
4x12 edge, No. 52.....	0 00@ 0 00
4x12 edge, No. 53.....	0 00@ 0 00
4x12 edge, No. 54.....	0 00@ 0 00
4x12 edge, No. 55.....	0 00@ 0 00
4x12 edge, No. 56.....	0 00@ 0 00
4x12 edge, No. 57.....	0 00@ 0 00
4x12 edge, No. 58.....	0 00@ 0 00
4x12 edge, No. 59.....	0 00@ 0 00
4x12 edge, No. 60.....	0 00@ 0 00
4x12 edge, No. 61.....	0 00@ 0 00
4x12 edge, No. 62.....	0 00@ 0 00
4x12 edge, No. 63.....	0 00@ 0 00
4x12 edge, No. 64.....	0 00@ 0 00
4x12 edge, No. 65.....	0 00@ 0 00
4x12 edge, No. 66.....	0 00@ 0 00
4x12 edge, No. 67.....	0 00@ 0 00
4x12 edge, No. 68.....	0 00@ 0 00
4x12 edge, No. 69.....	0 00@ 0 00
4x12 edge, No. 70.....	0 00@ 0 00
4x12 edge, No. 71.....	0 00@ 0 00
4x12 edge, No. 72.....	0 00@ 0 00
4x12 edge, No. 73.....	0 00@ 0 00
4x12 edge, No. 74.....	0 00@ 0 00
4x12 edge, No. 75.....	0 00@ 0 00
4x12 edge, No. 76.....	0 00@ 0 00
4x12 edge, No. 77.....	0 00@ 0 00
4x12 edge, No. 78.....	0 00@ 0 00
4x12 edge, No. 79.....	0 00@ 0 00
4x12 edge, No. 80.....	0 00@ 0 00
4x12 edge, No. 81.....	0 00@ 0 00
4x12 edge, No. 82.....	0 00@ 0 00
4x12 edge, No. 83.....	0 00@ 0 00
4x12 edge, No. 84.....	0 00@ 0 00
4x12 edge, No. 85.....	0 00@ 0 00
4x12 edge, No. 86.....	0 00@ 0 00
4x12 edge, No. 87.....	0 00@ 0 00
4x12 edge, No. 88.....	0 00@ 0 00
4x12 edge, No. 89.....	0 00@ 0 00
4x12 edge, No. 90.....	0 00@ 0 00
4x12 edge, No. 91.....	0 00@ 0 00
4x12 edge, No. 92.....	0 00@ 0 00
4x12 edge, No. 93.....	0 00@ 0 00
4x12 edge, No. 94.....	0 00@ 0 00
4x12 edge, No. 95.....	0 00@ 0 00
4x12 edge, No. 96.....	0 00@ 0 00
4x12 edge, No. 97.....	0 00@ 0 00
4x12 edge, No. 98.....	0 00@ 0 00
4x12 edge, No. 99.....	0 00@ 0 00
4x12 edge, No. 100.....	0 00@ 0 00

Poplar.	
Nos. 1 and 2, 4x4.....	\$21 50@ \$22 50
Nos. 5, 6 and 8-4.....	24 00@ 26 00
In yellow pine cargoes, log run stock.....	13 00@ 16 00
Culls.....	14 00@ 16 00

SHINGLES.	
Cypress, No. 1 hearts, sawed, 6x20.....	\$7 50@ \$7 75
No. 1 saps, sawed, 6x20.....	5 50@ 6 25
No. 1 hearts, shaved, 6x20.....	6 50@ 7 00
No. 1 saps, shaved, 6x20.....	@ 5 00

LATHS.	
White pine.....	\$2 85@ \$3 00
Spruce.....	@ 2 40
Cypress.....	2 00@ 2 15

## New York.

OFFICE OF MANUFACTURERS' RECORD,  
No. 126 Liberty Street,  
NEW YORK, July 13.

The complaint about a dull market is rather on the increase than otherwise. In fact we feel sure that the dullness is being felt in more places or in a larger number of yards than heretofore. We have seen a number of dealers who up to July 1 had done a business in excess of last year, whose business has fallen off since that time, and who are experiencing the dullness which has prevailed in other sections. It is highly probable, however, that this dullness is simply the result of this heated season. Certain it is that if all the rest of the business men are like the lumbermen not much business will be done. Take any five dealers doing business in New York and call them up on the telephone, and three of them will be out of town. This being so, why should not business be dull? The receipts of yellow pine for the past two weeks aggregate over 12,000,000 feet, yet this wood is in the dumps. It would be interesting to know what this 12,000,000 feet represented in profit to the manufacturer. We warrant you it is small, and not one fifth of what it should be. But who is to blame for this? Certainly not the dull times, for if the manufacturers had a proper organization they would be getting as good a margin of profit as if the times were better. As it is they are cutting one another's throats, and the men that are building houses in New York and elsewhere are pocketing the profits which rightfully belong to them.

Cypress is a wood which still continues in great favor wherever it has been tried, and its friends may be assured, as we believe, that sales will be largely increased during the year to come. In fact we have no doubt that accurate statistics would show continual increase in the demand.

North Carolina pine suffers to quite an extent from the general dullness. Particularly is this the case with box lumber, but it seems to me this should give its friends no particular uneasiness, as with the revival of trade which will probably come in the fall there will be a new call for it.

## SOUTHERN HARDWOODS.

The hardwood market is as dull as the softwood, and no improvement will probably be felt before the fall. We doubt if any large sales of any wood are being made. Quartered oak goes in carload lots, and is still the favorite wood, but this does not prevent its going slow.

Plain oak is in demand for good lumber. 1x8 inch and up..... \$35 00@ \$36 00  
1x6 inch and up..... 36 00@ 37 00  
Thicket..... 35 00@ 36 00  
Common..... 35 00@ 36 00

Nothing new can be said of ash. Good lumber meets with some sale.

1 inch..... \$35 00@ \$37 00  
1/2, 3/4 and 1 inch..... 37 00@ 40 00  
2, 3 and 4 inch..... 38 00@ 41 00  
Common..... 22 00@ 24 00  
Balusters..... 22 00@ 26 00

The most interesting question which confronts the trade to-day is what will the morrow be, the morrow being understood

to mean next fall. We are inclined to think that trade will be fairly active, although we question if there is any great demand until after the presidential election.

## Norfolk.

[From our own Correspondent.]

NORFOLK, VA., July 13.

The general condition of the lumber market at this port was never more prosperous, and the volume of business in this industry never greater. The demand is very active and orders plenty, all the mills at this and outlying points having as much as they can handle amid the general rush. Every mill is in good working order, and manufacturers are greatly encouraged by the very promising outlook and steady advance in values. Air-dried lumber is in liberal supply, and there is a good inquiry for firsts and seconds at fair prices, say \$13.00 for the former and \$10.00 for the latter, with every prospect of an early advance, as the labor trouble in Baltimore is reported settled. Prices for kiln-dried lumber have undergone no change, and the association has not seen fit to make any advance in any part of the general list. The planing mills here and at all other points are very busy, and are in receipt of lots of orders. The Tunis Lumber Co. have a large amount of business, and their sales are expected to show a heavy increase over last year. At all points in the Virginia lumber section the industry is reported healthy, and to the outside world very little is known of the growth and enterprise everywhere present throughout the lumber section of Virginia and North Carolina. The shipments of lumber from the wharves of the Suffolk & Carolina Railway at Suffolk, Va., for the six months ending June 30th were 18,300,000 feet, and from the Suffolk Lumber Co.'s wharf for the same period 7,221,000 feet of lumber, several cargoes of wood and over 2,000,000 shingles were shipped. There is a good supply of logs on the market and receipts continue quite liberal. The following list represents the prices current at this date:

Kiln-dried North Carolina pine lumber f. o. b. at this port is quoted as follows:

5 4 rift No. 1.....	\$27 50@
5 4 rift No. 2.....	16 00@
5 4 rift No. 3.....	19 00@
5 4 rift No. 4.....	19 50@
5 4 rift No. 5.....	15 00@
5 4 rift No. 6.....	15 00@
5 4 rift No. 7.....	15 00@
5 4 rift No. 8.....	15 00@
5 4 rift No. 9.....	15 00@
5 4 rift No. 10.....	15 00@
5 4 rift No. 11.....	15 00@
5 4 rift No. 12.....	15 00@
5 4 rift No. 13.....	15 00@
5 4 rift No. 14.....	15 00@
5 4 rift No. 15.....	15 00@
5 4 rift No. 16.....	15 00@
5 4 rift No. 17.....	15 00@
5 4 rift No. 18.....	15 00@
5 4 rift No. 19.....	15 00@
5 4 rift No. 20.....	15 00@
5 4 rift No. 21.....	15 00@
5 4 rift No. 22.....	15 00@
5 4 rift No. 23.....	15 00@
5 4 rift No. 24.....	15 00@
5 4 rift No. 25.....	15 00@
5 4 rift No. 26.....	15 00@
5 4 rift No. 27.....	15 00@
5 4 rift No. 28.....	15 00@
5 4 rift No. 29.....	15 00@
5 4 rift No. 30.....	15 00@
5 4 rift No. 31.....	15 00@
5 4 rift No. 32.....	15 00@
5 4 rift No. 33.....	15 00@
5 4 rift No. 34.....	15 00@
5 4 rift No. 35.....	15 00@
5 4 rift No. 36.....	15 00@
5 4 rift No. 37.....	15 00@
5 4 rift No. 38.....	15 00@
5 4 rift No. 39.....	15 00@
5 4 rift No. 40.....	15 00@
5 4 rift No. 41.....	15 00@
5 4 rift No. 42.....	15 00@
5 4 rift No. 43.....	15 00@
5 4 rift No. 44.....	15 00@
5 4 rift No. 45.....	15 00@
5 4 rift No. 46.....	15 00@
5 4 rift No. 47.....	15 00@
5 4 rift No. 48.....	15 00@
5 4 rift No. 49.....	15 00@
5 4 rift No. 50.....	15 00@
5 4 rift No. 51.....	15 00@
5 4 rift No. 52.....	15 00@
5 4 rift No. 53.....	15 00@
5 4 rift No. 54.....	15 00@
5 4 rift No. 55.....	15 00@
5 4 rift No. 56.....	15 00@
5 4 rift No. 57.....	15 00@
5 4 rift No. 58.....	15 00@
5 4 rift No. 59.....	15 00@
5 4 rift No. 60.....	15 00@
5 4 rift No. 61.....	15 00@
5 4 rift No. 62.....	15 00@
5 4 rift No. 63.....	15 00@
5 4 rift No. 64.....	15 00@
5 4 rift No. 65.....	15 00@
5 4 rift No. 66.....	15 00@
5 4 rift No. 67.....	15 00@
5 4 rift No. 68.....	15 00@
5 4 rift No. 69.....	15 00@
5 4 rift No. 70.....	15 00@
5 4 rift No. 71.....	15 00@
5 4 rift No. 72.....	15 00@
5 4 rift No. 73.....	15 00@
5 4 rift No. 74.....	15 00@
5 4 rift No. 75.....	15 00@
5 4 rift No. 76.....	15 00@
5 4 rift No. 77.....	15 00@
5 4 rift No. 78.....	15 00@
5 4 rift No. 79.....	15 00@
5 4 rift No. 80.....	15 00@
5 4 rift No. 81.....	15 00@
5 4 rift No. 82.....	15 00@
5 4 rift No. 83.....	15 00@
5 4 rift No. 84.....	15 00@
5 4 rift No. 85.....	15 00@
5 4 rift No. 86.....	15 00@
5 4 rift No. 87.....	15 00@
5 4 rift No. 88.....	15 00@
5 4 rift No. 89.....	15 00@
5 4 rift No. 90.....	15 00@
5 4 rift No. 91.....	15 00@
5 4 rift No. 92.....	15 00@
5 4 rift No. 93.....	15 00@
5 4 rift No. 94.....	15 00@
5 4 rift No. 95.....	15 00@
5 4 rift No. 96.....	15 00@
5 4 rift No. 97.....	15 00@
5 4 rift No. 98.....	15 00@
5 4 rift No. 99.....	15 00@
5 4 rift No. 100.....	15 00@

## Charleston.

[From our own Correspondent.]

CHARLESTON, S. C., July 12.

The business in lumber during the past week has been of a fairly active character, and in volume quite as large as that reported a week ago. As usual at this period of the season, trade is quiet in tone in certain branches of the lumber industry, and, while coastwise exports continue liberal, foreign business is dull. There is a fair demand for all dimensions of good to choice manufactured stock, and prices continue very steady, with quotations unchanged as follows: Merchantable, \$14.00 to \$16.00 for city sawed; \$12.00 to \$14.00 for railroad. Square and round timber, \$9.00 to \$13.00 for railroad, and \$8.00 to \$11.00 for raft.

Dock timber is firm at \$4.50 to \$6.50, and shipping, \$8.50 to \$10.50. Shingles are in good demand, with a liberal offering and fair supply at \$5.00 to \$7.00 per thousand, as to quality and condition.

EXPORTS OF LUMBER FROM CHARLESTON FROM  
SEPTEMBER 1, 1891, TO JULY 8, 1892.

Exported to	1891-'92. Feet.	1890-'91. Feet.
New York.....	27,811,378	20,887,563
Boston.....	251,000	251,000
Philadelphia.....	6,442,000	5,108,000
Baltimore.....	2,468,978	2,260,900
Other United States ports.....	4,443,009	7,583,311
Total coastwise.....	41,165,365	36,090,834
Great Britain.....	.....	.....
Palermo.....	.....	.....
France.....	.....	.....
West Indies.....	1,962,300	4,946,795
South America.....	177,000	540,410
Nova Scotia.....	.....	.....
Other foreign ports.....	578,174	.....
Total foreign.....	2,717,474	5,487,205
Grand total.....	43,882,839	41,578,039

## Savannah.

[From our own Correspondent.]

SAVANNAH, GA., July 12.

The volume of business during the past week has not diminished, and the outlook for the lumber industry continues encouraging. Shipments continue very liberal, and the coastwise trade is quite active. Exports reported during the week aggregate 4,260,000 feet of lumber, 18,300 staves, 641 cedar logs and 81,000 shingles. All the mills are running full time, and are generally rushed with orders for prompt and future delivery. The general impression among lumbermen is that there will be a steady but not excessive demand during the current year, and accompanying this a corresponding improvement in prices. Orders are more frequent from the West Indies and South America, and during the past week several large lots have been placed for the Argentine Republic and Brazil. There is no material change in values and the market continues steady. The Georgia Lumber Exchange quotes kiln-dried boards, firsts and seconds, assorted sizes, \$11.00 to \$14.00 per thousand feet; standards \$9.00 to \$12.00, and common \$8.00. Common flooring is quoted at \$8.00; standard or store grade \$11.00, and firsts and seconds \$12.00 per thousand feet. Lumber freights remain unchanged, with the usual liberal offering of tonnage. Rates by rail from this and nearby Georgia ports are steady at \$4.25 to \$5.00 for a range including Baltimore and Portland, Me. To West India ports rates are nominal, Buenos Ayres or Montevideo \$14.00, Rio Janeiro \$15.00, Spanish and Mediterranean ports \$12.00. The nominal rate to the United Kingdom for orders is £4 10s. per standard. Steamer rates to New York are steady at \$7.00, Philadelphia and Boston \$8.00, and Baltimore \$6.50 per ton.

## Mobile.

[From our own Correspondent.]

MOBILE, ALA., July 12.

A healthy tone pervades the lumber market generally and mills are all fully employed, the exports being fully up to the corresponding period last year. There is a good inquiry for all choice manufactured stuff and prices keep generally firm. The demand from the West Indies and South America is fair, and parties are now in the city whom it is expected will make a deal for 5,000,000 feet and upwards. The Seaboard Manufacturing Co. are now filling several large contracts of lumber for Mexico, including bridge timbers and building material. Another order calls for the monthly shipment of 30,000 cross ties. At outlying points in this State and Mississippi all reports are highly favorable for the lumber industry. As to the market for sawn and hewn timber, the past week has shown but few transactions of any moment. The demand is light, while all cable advices show a rather quiet market abroad,



with the tendency of prices toward a higher range. Hewn timber in the local market is quotable on a basis of 10 cents per cubic foot, and sawn is dull and easy at 10 1/4 to 10 1/2 cents. Logs are \$5.00 to \$7.00 per thousand, as to quality and size. Cypress is steady at 6 and 8 cents, the latter for timber 24 inches and above and the former for anything under 24 inches. The cypress shingle trade is represented as very encouraging, and the business of last month was the largest of the year, aggregating shipments of over 10,000,000. All the mills are actively engaged, and the supply is about equal to a very fair present demand. The exports of lumber for the past week were 1,720,977 feet, and since September 1, 1891, aggregate 53,594,908 feet, against 45,989,531 for the year 1890-91. Exports of hewn timber for the week were 125,326 cubic feet, and of sawn 100,960 cubic feet. At Pensacola the market is quiet, and receipts of timber liberal at Ferry Pass. The demand is not urgent, but prices abroad are reported firmer. The *London Timber Trade Journal* of the 2d instant reports freights to the Gulf of Florida easier, recent fixtures done at 105s., but later boats have been offered at 100s. A couple of sailer charters, Pensacola to Buenos Ayres \$14.00 and from Mobile to United Kingdom and Continent 99s. and 97s. 6d., were also placed. Late sales of pine timber in London are reported ex Morning Light from Pensacola netting 55s. for 174 feet, 12x14 inches and 12x15 1/2 inches, and 52s. 6d. for 498 feet, 12 1/2 x 14 inches.

### Memphis.

[From our own Correspondent.]

MEMPHIS, TENN., July 11.

Business continues brisk among the various manufacturing establishments of this city as well as those in the surrounding section of country. They have plenty of orders on hand and look forward to a good late summer and fall trade.

At Huntsville, Ala., work on the extension of the Nashville & Chattanooga Railroad from Huntsville to Guntersville will begin this week; a passenger and freight depot will be built at Huntsville; work has commenced there for the construction of fifty cottages for the Dallas Cotton Mill operatives, and a handle factory will soon be in progress of construction and which will give employment to eighty or one hundred men.

During the past ten days many new industries have been incorporated or established throughout this section of the South, among others a coke company and an electric light plant at Knoxville, Tenn.; large flouring mills at Hot Springs, Ark.; a gun factory at Chattanooga, Tenn.; new coal mines opened at Birmingham and Attalla, Ala.; woodworking plant and barrel factory at Gurley, Ala.; a furniture factory at Conway, Ark.; a \$25,000 saw mill at Loudon, Tenn.; another of like value at Hollywood, Miss.; a circular saw mill at Black Rock, Ark.; spoke works and factory at Union City, Tenn.; woodworking plants at both Decatur and Chapman, Ala., and also at Meridian, Miss., and a \$20,000 factory building at Nashville, Tenn.

The output of lumber from Coldwater river, North Mississippi, this season aggregated 6,000,000 feet, of which amount 1,000,000 feet of square hardwood and 400,000 oak staves went to New Orleans for export to Liverpool.

The demand for Southern lumber is increasing rapidly, and prices rule very steady. Stocks held here are large, and a big trade is expected during the season. No labor troubles are reported in the iron-producing section, and the feeling is that an advance may be looked for, owing to reduced stocks and the labor troubles in the North. The scale of the Amalgamated Association has been generally signed by Southern producers. The output of the

coal mines continues heavy, and the demand remains steady.

In the mercantile world business continues very good, considering the checking effect of the high waters in the Mississippi river and tributaries. Money is plentiful, with only moderate demand, business generally being conducted on a much more conservative plan than during former seasons, the credit system being largely curtailed.

The following are the current wholesale quotations:

BLACK WALNUT.	
1st and 2d, 1, 1 1/2 and 2 inch.....	\$65 00@ 70 00
Common.....	35 00@ 40 00
Counter tops.....	90 00@110 00
ASH.	
1st and 2d clear, 1 to 4 inch.....	25 00@ 30 00
Common.....	12 00@ 14 00
CYPRESS.	
1-inch, 1st and 2d clear.....	22 00@ 24 00
1 1/2, 1 3/4 and 2 inch.....	24 00@ 26 00
Fencing 1x6, 16 feet.....	15 00@ 16 00
POPLAR.	
1-inch, 1st and 2d clear.....	24 00@ 25 00
1 1/2 and 2-inch, 1st and 2d clear.....	26 00@ 28 00
Common boards.....	14 00@ 16 00
Dressed, 1, 1 1/2 & 2-in., 1st & 2d clear.....	28 00@ 30 00
Common dressed, 1-inch.....	16 00@ 17 50
Squares.....	22 50@ 26 00
COTTONWOOD.	
1 to 3-inch mill run, culls out.....	9 00@ 12 00
Squares.....	12 50@ 16 00
RED GUM.	
1st and 2d.....	16 00@ 20 00
Common and culls.....	8 00@ 10 00
OAK.	
1 to 4-inch, 1st and 2d.....	24 00@ 26 00
Common, 1 and 2 inch.....	13 00@ 15 00
Quarter oak, 1 inch, 1st and 2d.....	30 00@ 32 00
Quarter oak, 1 1/2-inch and up.....	34 00@ 36 00
White fir higher.....	
YELLOW PINE.	
1st and 2d, 1 1/2 and 2-inch.....	18 00@ 20 00
Dressed.....	25 00@ 30 00
Flooring, 5 and 6 d and m.....	17 50@
Flooring, 3 and 4 d and m.....	17 5 0@ 20 00
2d flooring.....	15 00@ 17 50
Heat step lumber.....	37 50@
Ceiling, 1st and 2d, 3/4, 5/8 and 1/2.....	17 5 0@ 20 00
Ceiling, 1st and 2d, 3/4 and 1/2.....	16 0 0@
Common f. o. b. Memphis.	
Car lots.....	12 50@
TIMBER (LOGS).	
Poplar.....	6 00@ 10 00
Cypress.....	6 00@ 9 00
Cottonwood.....	3 00@ 4 00
Gum.....	3 00@ 4 50
Oak.....	6 00@ 12 00
Ash.....	8 00@ 13 00
Black walnut.....	15 00@ 50 00
SHINGLES.	
No. 1 heart cypress, 16 inch.....	3 0 0@
No. 1 sap, 16 inch.....	2 25 0@
LATH.	
Poplar.....	2 00@ 2 75
Cypress.....	2 00@ 2 50
Pine.....	2 00@

### Chattanooga.

[From our own Correspondent.]

CHATTANOOGA, TENN., July 9.

The outlook for the lumber trade continues to improve, there being a good demand for all sorts of stuff, especially poplar and white oak, several large deals having been made in the last-mentioned article. Mills still running full of orders and mill men in good spirits. We quote: Yellow pine framing up to 26 ft. long \$ 6 10 00  
Flooring, standard..... 15 00  
Ceiling, standard..... 13 50  
White oak, log run..... 13 00  
Poplar, 1st and 2d..... 22 00

### Beaumont, Texas.

BEAUMONT, TEXAS, July 12.

Although the current month is considered one of the most inactive in lumber circles, there is a fair business reported during the past week. The shipments from this and surrounding points of the saw-mill section continue to increase in volume, and prices are firm with a hardening tendency. On certain dimensions there has been a slight advance, and with the active demand for finishing lumber an advance of 50 cents to \$1.00 per thousand is expected in the next thirty days. Orders continue to come in very freely, and there is a good inquiry covering the State and Northwest. The Mexican demand for framing timber and lumber, as well as cross-ties, shows a steady increase, while a good trade is being cultivated with the Atlantic coast. The jetty system at Sabine Pass gives plenty of water, and vessels drawing fifteen feet have recently been loaded with lumber for export. At Orange, Westlake and Lake Charles, La., there is an active, decided movement. All mills are fully engaged, and the demand is very sharp, many mills being behind in orders. There is a better tone generally, and prices are firm and hardening. The Perkins & Miller Lumber Co. are improving their plant by the addition of an endless long haul and the erection of a water tower near their slab elevator.

The Bradley-Ramsey mills are in thorough working order; the whole premises is supplied with electric lights, the machinery having been put in by the company for that purpose. This company report a large influx of orders, and are supplied with enough to keep their saws and woodworking machines running for an indefinite period. At Orange, the East Texas and Southwest Louisiana Lumber and Shingle Manufacturers' Association held their regular quarterly meeting on the 5th inst.

### TRADE NOTES.

THE Hercules Iron Works, of Chicago, Ill., has received a contract to put in a 20-ton Hercules ice plant for the Des Moines (Iowa) Ice Co.

THE Stiles & Parker Press Co., of Middletown, Conn., announces to the trade the removal of its office to No. 17 Adams street, Brooklyn, N. Y., to which all correspondence should be addressed.

THE Nordyke & Marmon Co. of Indianapolis, have this season constructed three large mills—one at Greenwood, one at Noblesville and one at Indianapolis. Such a number of orders are coming in that they are running night and day without being able to keep up with them.

WM. E. HILL & Co., manufacturers of special machinery, Kalamazoo, Mich., have opened a branch office in rooms 506 and 507, Home Insurance Building, Adams and La Salle streets, Chicago, Ill. Mr. W. F. Parish, well known to the trade, will assume the management of this office.

PARIS & FOLEY, of Lola, Ky., write that the 30-barrel flour mill erected for them by the J. B. Allfree Manufacturing Co., of Indianapolis, has been in operation for two months, and fully comes up to their expectations and the guarantee made as to its performance.

THE Campbell & Zell Co., of Baltimore, announce that Mr. Robert R. Zell, formerly vice-president and general manager, is no longer connected with the active management, and request that all correspondence be addressed to the company direct.

THE Builders' Iron Foundry, of Providence, R. I., is now finishing and assembling, for the United States government, for coast defence, forty three 12 inch breech-loading rifled mortars, making, with those finished under a previous contract, seventy-three guns of this type from the works of this company.

THE Chandler & Taylor Co., of Indianapolis, have sold to the Moore Packing Co. six 125 horse-power boilers; to the Union Co-operative Laundry, a fifty horse-power boiler and thirty horse-power engine; to Geo. B. Hall, a thirty horse-power engine and boiler, and to the Knightstown Conserve Co., an engine and boiler for their canning works.

THE Carolina Brownstone Co., of Raleigh, N. C., sends us a specimen of brownstone from its quarries at Sanford, Moore county, N. C. The stone is of beautiful color and fine grain, and we are informed that it runs very uniform both in color and texture. It is sold in mill blocks or dimension sizes, and the quality is guaranteed. The prices are low.

In the suit in the United States Court of the Canton Steel Roofing Co. vs. Alvin C. and William Kanneberg, as the Kanneberg Roofing Co., for infringement of patent on sheet metal roofing, the court has decided that the roofing manufactured by the Kanneberg Roofing Co. is an infringement upon patents owned by the Canton Steel Roofing Co., of Canton, Ohio, and the Kanneberg Roofing Co. are perpetually enjoined from the manufacture of said roofing.

THE well known company, the Hercules Iron Works, Chicago, Ill., who were successful in obtaining the contract for the entire ice-making and refrigerating plant for the World's Fair, has secured the contract to put in the plant of the mammoth refrigerating establishment at Des Moines, Iowa. The Hercules Iron Works have also just closed a contract with the Peoria Packing & Provision Co., Peoria, Ill., for a 50 ton refrigerating plant.

J. W. PENFIELD & SON, of Willoughby, Ohio, have issued a descriptive circular of the dry and wet pans, bucket elevators, screens, etc., made by them. The manner in which the machines are constructed, the material in them, capacity and power required to operate, are fully described and illustrated. Another circular by the same firm shows the various forms of machines for brick-making which they construct for horse-power. A full description and the price of each is given.

PERSONS in any way interested in canning would do well to write to Messrs. John Murphy

& Co., Baltimore, for a prospectus of their book entitled "The Secrets of Canning." Written by a practical and experienced canner, it explains clearly and thoroughly all essential points connected with the canning business, and is replete with valuable information and advice. It treats of the canning of vegetables, fruits, fish, oysters and meats, and contains a list of the canners in the United States and other useful information.

THE Van Wagoner & Williams Co., formerly of New York, has moved its plant to Cleveland, Ohio. They first broke ground for the works in the fall of 1891, and by February, 1892, had them completed and a part in operation. The buildings are of brick, one 220x28 feet two stories high, and the other, the foundry, 100x20 feet. This is one of the best equipped and finest plants in the West. At present 250 hands are employed, and when in full operation nearly twice that number will be required.

THE Ingersoll-Sergeant Drill Co. calls attention to the following excellent work in driving tunnels with its drills: "Pottsville, Pa., July 1, 1893.—At York Farm tunnel, near Pottsville, on the Lehigh Valley Railroad, we drove in the month of June last in a single heading 333 feet of tunnel, finished complete, including ditch as measured by the engineer this morning. We used Ingersoll-Sergeant drills exclusively, miners' safety lamps, and we did no Sunday work. (Signed) Joseph Dolan, contractor."

THE Globe Iron Rolling & Corrugating Co., of Cincinnati, Ohio, reports an active demand for its specialties, steel roofings and corrugated sidings, and guarantee prompt shipments regardless of the stoppage of mills through labor troubles. The company carries about 1,000 tons of steel and roofing sheets, and is prepared to execute all orders on receipt. Its rolling mill at New-Port, Ky., will resume operations in about two weeks, being stopped for putting in new mill and other repairs.

ANNOUNCEMENT is made that the business of the Morris Machine Works, of Baldwinville, N. Y., (of which W. F. Morris was sole owner) has been incorporated under the laws of the State of New York, the old title being retained. The capital stock of \$300,000 is full paid, thus giving the new organization ample means with which to prosecute its business. This, in connection with the superior facilities, is sufficient assurance that the new concern will fully maintain the reputation of the old.

THE Robinson Machine Co., of Altoona, Pa., though very much engaged in carrying out their plans for the enlargement of their works, manage to look after the various railway companies desiring equipment, as their many contracts testify, the most recent being those closed with the Citizens' Street Railway Co., Steelton, Pa.; York Street Railway Co., York, Pa.; Johnston Passenger Railway, Johnston, Pa.; Bristol Belt Line Railway, Bristol, Tenn.; Youngstown Street Railway Co., Youngstown, Ohio.

At a regular meeting of the board of education, held in the city of Toledo, Ohio, last week, to decide on the purchase of a piano, out of fourteen different well-established makes in competition, and after a thorough and critical examination of the various instruments, it was unanimously decided in favor of Chas. M. Stieff's concert grand, with whom the order was placed. The pianos manufactured by the firm of Chas. M. Stieff, 9 North Liberty street, Baltimore, have been on the market for a half century and have well borne the test of time and competition.

THE Springfield Emery Wheel Manufacturing Co., which was declared insolvent on May 16, has been bought out by a new company known as the Springfield Emery Wheel Co. The entire plant, machinery, stock and appliances were included in the transfer, and new and improved machinery will be added to the plant. This new company has all the records of shipments of the old company and can supply parts or duplicate orders given to the latter during the past eight years. The foreman, superintendent and general manager have been retained, and the company are in better shape to fill orders than their predecessors.

MR. P. M. WALTON, 1023 Germantown avenue, Philadelphia, Pa., has closed a contract in Omaha, Neb., for a complete equipment of paint mill machinery costing over \$5,000, and in Charleston, S. C., a contract for phosphate mining machinery for the handling of phosphate rock, and fitting up a paper mill in Pennsylvania with full line of improved machinery. This firm manufactures paint mills, paint mixers, oilcloth machinery, spice mill and drug mill machinery, corn mills, phosphate and flour mill machinery, and is prepared to furnish estimates on all kinds of machinery needed. Mr. Walton reports his business as quite brisk, many orders booked and quite a number of estimates given for orders, which will be placed shortly. Those desiring to purchase machinery for new factories or the remodeling of old ones would do well to write for illustrated catalogue.



# CONSTRUCTION DEPARTMENT.

**WE PUBLISH**, every week, a list of every new factory, of whatever kind, projected anywhere in the South; every railroad undertaken, and every mining company organized. This information is always fresh, and, by enabling manufacturers to correspond with the projectors of such enterprises before their supplies of machinery have been purchased, is of great value. Manufacturers will find it to their interest to read this department carefully each week.

\* Means machinery is wanted, particulars of which will be found in "Machinery Wanted" columns.

In correspondence relating to matters reported in this paper, it will be a favor if it is stated that the information was gained from the MANUFACTURERS' RECORD.

## ALABAMA.

Athens—Can Factory.—H. Le Grande has started a tin can factory.

Attalla—Cotton Ginnery.—Jason Fain is erecting a steam cotton ginnery near Attalla.

Cottontale—Cotton Mill.—The Tuscaloosa Manufacturing Co. has lately put considerable additional machinery in its cotton mill, and will soon put in another engine, etc.

Montgomery—Gas Works.—The Montgomery Light Co. is rebuilding its gas works and will about double the capacity of same. These improvements will cost about \$40,000.

## ARKANSAS.

Greenway—Heading Factory.—The McLein Stave & Heading Co. is putting in a new heading machine.

Little Rock.—The Arkansas Stables Co. has been organized with a paid-up capital stock of \$15,000. Max Markley is president; R. B. Hoener, secretary, and Jos. C. Herold, treasurer.

## FLORIDA.

Bradfordville—Canning Factory.—A company has been organized with G. W. Saffron as president, for the purpose of establishing a canning factory.

Fernandina—Commercial Company.—Samuel Petty, R. S. Mitchell, R. E. Robinson and others have incorporated the Nassau Commercial & Land Investment Co. to conduct a general commission business, etc. The capital stock is \$10,000.

Jacksonville—Water Works.—The Fairfield Water Co. has sunk an artesian well at Fairfield.

Kissimmee—Electric-light Plant, Iron Foundry, etc.—A. E. Drought, J. H. Dawe, M. Katz and others will apply for charter for the Kissimmee Manufacturing, Improvement & Electric Light Co., having for its purpose to erect an electric-light plant, iron foundry, etc. The capital stock is to be \$15,000.

Orlando—Irrigating Plant.—Mr. Olive has constructed an irrigating plant near Orlando.

## GEORGIA.

Macon—Packing Company.—A. B. Small and Chas. F. Avery, mentioned last week as having organized the Georgia Packing Co., have applied for charter. The company's object is to carry on a general butchers' and canning business; capital stock authorized \$10,000.

Milledgeville—Flour Mill.—The Oconee River Mills, reported last week as chartered, already has its mill fitted up ready for operating.

Riceborough—Canning Factory.—R. M. Martin thinks of starting a canning factory.

Savannah—Soap Factory.—Messrs. Green, Kidwell & Co. will erect a new and larger soap factory at once. Contracts for erecting buildings have been let.

Savannah—Turpentine Tanks.—A project is on foot for the organization of a stock company to erect several iron tanks of from 1,000 to 5,000 gallons capacity for the storage of spirits turpentine. Jno. R. Young, of Ellis, Young & Co., can be addressed for information.

## KENTUCKY.

Carrsville—Corn and Flour Mill.—Clemens, Likens & Co. are erecting a roller flour mill; contracts for all machinery let to Barnard & Leas Manufacturing Co., of Moline Ill.

Covington—Mining Company, etc.—Wilson E. Griffith, Jno. R. Patton and Judson W. Breed have incorporated the La Dura Mining & Mill-

ing Co. to purchase and sell mineral rights, mine and reduce ores, etc. The capital stock is \$125,000, to be paid for in full in cash, and not to be issued until so paid for.

Glasgow—Handle Factory.—C. E. Carpenter, of New York, has purchased and will operate the Glasgow axe-handle factory.

Lebanon—Flour Mill.—The Lebanon Roller Mill Co. is changing its 300 barrel flour mill to the Allfree system. Contract is let to the J. B. Allfree Manufacturing Co., of Indianapolis, Ind.

Louisville—Electric Company.—C. J. Jenne, William Carter and Charles E. Willey have incorporated the C. J. & W. Electric Co. to deal in and manufacture electric machines, etc. The capital stock is \$10,000. Mr. Jenne is president; Mr. Carter, vice-president, and Mr. Willey, secretary and treasurer.

Louisville—Fire-escape Factory.—The Kirker & Bender Fire-escape Co. has been incorporated to manufacture patented fire-escapes. The capital stock is \$100,000.

Newport—Rolling Mill.—The Globe Iron Rolling & Corrugating Co., of Cincinnati, Ohio, has put in a new mill and otherwise improved its Newport plant.

Newport—Button Factory.—Wm. H. McKenney, Edw. H. Lovell, W. E. Gosser and Abraham L. Whitney have incorporated the Ohio Valley Pearl Co. to manufacture pearl buttons and other pearl goods. The capital stock is \$25,000.

## LOUISIANA.

Alexandria—Water Works.—The Alexandria Water Works & Improvement Co. has elected the following officers: Geo. O. Watts, president; W. F. Blackman, vice-president, and John C. Ryan, secretary.

Houma—Publishing Company.—John J. Shaffer, Edmund McCollam, W. F. Davidson and others have incorporated the Terrebonne Publishing Co.

Lake Charles—Rice Mill.—The Board of Trade is endeavoring to organize a \$50,000 stock company to erect a rice mill. For information address secretary Board of Trade.

New Orleans.—The Self Cleaning Mortise Chisel Co., Limited, has been chartered. The capital stock named is \$250,000.

New Orleans.—The New Orleans Swamp Land Reclamation Co. has authorized a second issue of stock to the amount of \$100,000 for the purpose of purchasing additional lands upon which the company has options and completing its plant to transport filling on a large scale. Address Chas. Lonque, president.

New Orleans—Foundry and Machine Shop.—William E. Clarke has petitioned the city council for permission to erect an iron foundry and machine shop.

Plaquemine—Printing and Publishing Company.—The Home Journal Publishing & Printing Co. has been chartered to do a printing and publishing business. Andrew H. Gay is president, and Wm. E. Barker, vice-president.

Rush Point—Cottonseed-oil Mill.—A charter has been granted to the Rush Point Cotton Oil Manufacturing Co. having for its purpose the erection of a cottonseed-oil mill. W. L. Dickson is president; N. W. Sentell, vice-president; J. H. Martin, secretary, and J. S. Swann, treasurer, and the capital stock \$15,000.

## MARYLAND.

Baltimore—Flour Mill.—Wm. E. Woodyear & Co. have added steam power to their Mt. Vernon mill, thus increasing capacity to 400 barrels. They may put in a new water wheel.

Baltimore—Land and Improvement Company. Jas. S. Woodside, Jas. E. Ingram, A. J. Corning and Geo. T. Gambrell, of Baltimore, and Hy. A. Parr, of Baltimore county, have incorporated the Ocean Beach Land & Improvement Co. with a capital stock of \$100,000.

Baltimore—Telephone Line.—Alexander de Barril, president of the Baltimore & Drum Point Telephone & Telegraph Co., is endeavoring to secure subscriptions to complete the line between Baltimore and Drum Point. It is now about two-thirds finished.

Baltimore—Manufacturing Company.—J. C. and Simon Lake, Wm. H. Whiting, Albert H. and Le Roy B. Callon have incorporated the J. C. Lake & Son Co. to manufacture steering gear for vessels, crank-winders, etc. The capital stock is \$25,000.

Baltimore—Metal Refining Works.—The Baltimore Electric Refining Co. has contracted to greatly enlarge its electric refinery at Canton. This concern employs 150 men, and refines and separates metals by electrolysis. The ores from the celebrated Anaconda copper mines are refined here.

Baltimore—Ship yards, etc.—The R. M. Spedden Co., recently reported as incorporated, is making extensive additions to its ship yards. A new boiler-house has been built and considerable

machinery added, including two powerful steam hammers, lathes, planers, shears, punchers, etc.

Baltimore—Transfer Company.—Jos. E. Geigan, Harry Sloan, P. S. Laughlin, Jno. C. Hollstein and Jas. McColgan have incorporated the Baltimore Transfer Co. with a capital stock of \$80,000. The company's purpose is to transact a forwarding and warehouse business.

Crisfield—Electric-light Plant and Ice Factory. The Crisfield Ice Manufacturing Co., reported last week as incorporated, intends to put in a 20 ton ice plant and later on an electric plant for lighting the town.\*

Frederick—Spoke Works.—The Frederick City Spoke Works has commenced the manufacture of single, double and triple trees in addition to spokes.

## MISSISSIPPI.

Greenwood—Water Works.—The construction of a system of water works is contemplated. Messrs. Thayer & Co. can give information.

Grenada—Iron Bridge.—The board of supervisors has contracted with the Youngstown (Ohio) Bridge Co. for the erection of a \$10,000 iron bridge over the bayou at the east end of the city.

Meridian—Bagging Factory.—A company will be organized to operate the Meridian bagging factory. Charles Rubush can probably give information.

## NORTH CAROLINA.

Charlotte—Brick and Tile Works.—The Charlotte Brick & Tile Manufacturing Co., reported fully in our last issue, has obtained its charter. The capital stock is \$100,000.

Charlotte—Flour Mill.—A meeting will be held by the citizens on the 23d instant to consider the organization of a company to erect a 100-barrel flour mill. The secretary Board of Trade can probably give information.

Charlotte—Gas Plant.—The new Second Presbyterian Church to be built will be equipped with a frictional gas lighting plant. Contract has been let to the D. A. Tompkins Co.

Durham—Woodenware Factory.—W. H. Wortham, G. C. Farthing and W. J. Christian have incorporated the Wortham Wooden Mills to conduct a general woodworking business. The capital stock is \$12,000, with privilege of increasing to \$50,000. This company will operate the Durham Sash, Door & Blind Factory, which has been conducted by W. H. Wortham.

Elkin—Tobacco Factory.—R. G. Franklin already has his tobacco factory, reported last week, in operation.

Hickory—Saw Mill.—F. P. Rockett will erect a saw mill.\*

Knap of Reeds—Iron Mines.—Messrs. Kife & Logan, of Lancaster, Pa., are opening an iron mine near Knap of Reeds; Geo. D. Pittard is their local manager.

Reidsville—Flour Mill.—T. F. Rankin has built a flour mill.

Salisbury—Drainage System.—The city has contracted with the Salisbury Sewer Co. for a complete drainage system.

Winston—Lithographing Works.—John Igelstrom and J. L. Ritch are endeavoring to organize a company to establish lithographing works. Over \$8,000 has already been subscribed.

## SOUTH CAROLINA.

Aiken—Ice Factory.—B. F. Turner, W. J. Place, J. St. J. Yates and others have organized a company to erect an ice factory. It will be located at Coker Spring; machinery has already been ordered.

Chester—Manufacturing, Water-power, etc.—F. J. Pelzer and W. A. Courtenay, of Charleston; T. C. Robertson and Allen Jones, of Columbia, and J. B. London, of Rock Hill, have purchased the famous Catawba Falls water power, including 3,000 acres of land. The purchasers intend to organize a water-power and manufacturing company on a large scale. It is said that the river will develop 1,500 horse-power at this point.

Gaffney—Cotton Mill, Electric-light Plant, etc. The Gaffney Manufacturing Co. has been chartered to operate a cotton mill, cottonseed-oil mill and an electric-light plant. The incorporators are A. N. Wood, J. A. Carroll, H. D. Wheat and three others; capital stock \$100,000.

Greenville—Water Works.—A \$12,000 stock company is to be organized to construct a water works system. It is proposed to bring the water from Chick Springs by means of the Garrett motor. No names are mentioned with the project.

Monk's Corner—Saw Mill.—The South Carolina Land & Lumber Co. has been chartered with A. S. Emerson, president; Stephen Jennings, vice-president, and J. R. Smith, secretary and treasurer. A saw mill has been erected and will be operated at Monk's Corner; capital stock of company \$300,000.

Prosperity—Cotton Mill.—A cotton mill may be erected. Address A. H. Kohn for information.

Trio—Saw Mill.—J. W. Register is rebuilding the Register & Alderman saw mill, recently destroyed by fire, and will operate it. Its capacity will be about 30,000 feet of lumber daily.

## TENNESSEE.

Blue Spring Station—Crushing and Washing Plant.—The Blue Spring Mining Co. will erect a new steam crushing and washing plant. Paul Gass is superintendent.

Chattanooga—Electrical Works.—J. E. Van Valkenberg and others will organize a stock company to erect electrical works. They have purchased the right to manufacture in Tennessee the lamps, batteries and motors of the Hubble Electric Light & Power Co.

Chattanooga—Electric Plant.—C. E. James has placed in his warehouses a small electric plant.

Chattanooga—Fibre Factory.—H. R. Bean, of the Standard Fibre Co., of Chicago, is in Chattanooga looking to its advantages as a location for a fibre factory with a view to erecting one.

Colesburg—Flour Mill.—C. A. Pardee is remodeling his flour mill to the roller process. Machinery is purchased.

Elizabethton—Water Works.—The Co-operative Town Co. is making preparations to construct a water works system.

Fountain City—Electric-light Plant.—The Fountain City Land & Improvement Co. contemplates the erection of an electric-light plant.

Knap of Reeds—Saw Mill.—The S. K. Paige Lumber Co., of Harriman, Tenn., will not at present build the saw mill reported last week, but may later on.

Knoxville—Water Works.—The Knoxville Water Co. intends to erect another reservoir.

Loudon—Lumber Plant.—The Ketchum Lumber Co., composed of Iowa parties, intends locating a lumber plant at Loudon.

Memphis—Saw Mill and Timber Lands.—J. A. Holmes & Co., of St. Louis, Mo., have purchased 2,500 acres of timber land in Obion county for \$50,000, and G. R. Minnick & Co., of Minnick (P. O. Obion), will at once put in a band saw mill to cut the timber.

Montvale—Mining and Manufacturing Company. The Montvale Land & Improvement Co. will be reorganized under the name of the Montvale Mining & Manufacturing Co.

Mouse Creek—Flour Mill.—T. J. Pyron will erect a 30-barrel flour mill.

Nashville—Fibre Factory.—The Standard Wood Fibre Co., lately reported as organized, has its plant in operation. It is located about nine miles from Nashville. Wood fibre is manufactured for street sweepers, brooms, etc.

Pleasantville—Saw Mill.—C. L. Storrs has erected a saw mill.

## TEXAS.

Calvert—Cotton Compress.—A cotton compress will be built at once. C. M. Norton can give information.

Cleburne—Ice, Light and Water Works.—S. W. Lovelady, L. W. Chase and B. Gray have chartered the Cleburne Water, Ice & Lighting Co. with a capital stock of \$100,000.

Corsicana—Sewer System.—The city will extend its sewer system. The mayor can give information.

Dallas—Coal Company, etc.—Thomas F. King and Michael T. Cone, of Dallas; Charles E. Lockwood, of New York; Francis J. Palmer, of Chicago, Ill., and others have incorporated the Texas Coal & Asphaltum Coal Tar Co. at Newark, N. J. The capital stock is \$5,000.

Fort Worth—Creamery.—Edward Wehrhan is erecting a creamery.

Houston—Electric Power-house.—The Houston Street Railway Co. has put a new boiler and engine and two new dynamos in its electric power-house.

Llano—Development Company.—Col. W. L. Miller, of Llano; Messrs. McNamara, Yoakum, Flemming, of San Antonio, and others are organizing the Bessemer-Llano Development Co. The capital stock is to be \$5,000,000 and it is said that over two-thirds of it has already been subscribed. W. T. Moore, Jr., can give information.

Tyler—Tannery.—The Lone Star Leather Co. is enlarging its tannery.\*

## VIRGINIA.

Chatham—Flour Mill.—F. L. Moses & Bro. have let contract to the Case Manufacturing Co., of Columbus, Ohio, for the erection of a complete roller flour mill.

Claremont—Woodworking Factory.—The Claremont Manufacturing & Improvement Co., reported as organized, etc., will operate a wood-working factory; Wm. Dillard, secretary.\*

Lynchburg—Cotton Mill.—The Lynchburg Cotton Mill will put in additional machinery, including 5,000 spindles and 200 looms.



Roanoke—Flour Mill.—J. B. Garst & Bro. are putting new dressers and bolts in their flour mill.

Roanoke—Investment Company.—The Decennial Investment Co. has been chartered to buy and sell real estate, etc. The capital stock is \$10,000; officers, J. B. Fishburne, president; J. A. Fishburne, vice president, and E. B. Fishburne, secretary and treasurer.

Strasburg—Limestone Quarry.—Messrs. Ryan & McDonald, of Baltimore, Md., will develop a limestone quarry on the Geo. A. Hupp estate near Strasburg.

Winchester—Canning Factory.—The Shenandoah Valley Canning Co. has been organized with a capital stock of \$10,000 to establish a canning factory. F. K. Cartmell can give information.

#### WEST VIRGINIA.

Central City—Handle Factory.—Hartzell, Caldwell & Marr will erect an addition to their handle factory.

Charleston—Flour Mill.—Bert and Lee Bibby have leased and will operate the Bibby & Bros. flour mill.

Elm Grove—Flour Mill.—E. M. Atkinson and J. S. Woods have purchased and will operate the Elm Grove roller mills.

Harper's Ferry—Cable Tramway.—Ehman, Jones & Thorne, of Baltimore, Md., are building a cable tramway at their Harper's Ferry quarries.

Martinsburg—Publishing Company, etc.—The Allen Publishing Co. has been incorporated for publishing and printing purposes. The capital stock is \$100,000.

New Martinsville—Gas and Oil Wells.—Joseph Stendey, Jacob Blair, W. S. Wiley and others have incorporated the Magnolia Oil & Gas Co. with a capital stock of \$25,000.

Wheeling—Cold-storage Plant.—The Wheeling Ice & Cold Storage Co. may erect a \$6,000 cold-storage house.

#### BURNED.

Chunchula, Ala.—The Chunchula saw mills, the property of Mrs. Catherine Casey.

Greenville, Texas.—R. C. Phonstall's furniture factory and planing mill; loss about \$10,000.

Louisville, Ky.—Wedekind, Hallenberg & Bro.'s laundry; loss about \$200,000.

Madison, Fla.—McNair Bros.' variety works and planing and grist mill.

Norfolk, Va.—Greenleaf Johnson's saw mill damaged by fire.

Pocomoke City, Md.—The Pocomoke Creamery.

Sanford, N. C.—Omohundro & Diggs' saw mill, near Sanford.

#### BUILDING NOTES.

Albany, Ga.—Courthouse.—The Dougherty county courthouse will, it is stated, be remodeled at a cost of \$20,000. The county clerk can give particulars.

Alexandria, La.—Union Depot.—The Texas & Pacific Railroad Co. (office, Dallas) and the Houston, Central Arkansas & Northern Railroad Co. will build a union passenger depot in Alexandria.

Atlanta, Ga.—Courthouse and Jail.—The Fulton county commissioners have purchased a site for a new courthouse; they also decided to build a new jail and will invite plans.

Augusta, Ga.—Union Depot.—The Union Depot & Terminal Co. intends erecting a union passenger station 500x175 feet. The building proper is to be 80x270 feet, of brick and iron, and have a steel car shed 135x500 feet. The estimated cost is \$200,000.

Augusta, Ga.—Isham A. Carter has been awarded contract for a three story brick store building 50x100 feet for T. White. MacMurphy & Story prepared the plans, and the estimated cost is \$10,000.

Baltimore, Md.—Church.—The congregation of the North Baltimore Reformed Mission, Rev. C. W. Levan, pastor, will build a stone edifice and a parsonage.

Baltimore, Md.—The Bay Line Co. will erect a brick office building and three large freight sheds.

Baltimore, Md.—Bank Building.—The Drovers and Mechanics' National Bank is preparing to erect a bank building.

Batesville, Ark.—College.—Contract has been awarded Mr. Ryan, of Fort Smith, at \$8,447.20 for a college building in Batesville.

Baxley, Ga.—Hotel.—A new hotel may be built.

Birmingham, Ala.—Office Building.—Francis J. Norton, Masonic Temple, Chicago, Ill., has prepared plans for a seven-story office building 100x125 feet for Arthur B. Connors. It is to have elevator, steam heat, electric lights, etc., and cost about \$125,000.

Charleston, W. Va.—Temple, etc.—The Masons will, it is understood, soon commence building a temple. J. D. Baines will, it is stated, erect several business buildings.

Charleston, W. Va.—The board of education of Charleston district has ordered the erection of a

school building at Riverside, one at Patrick and another below Kanawha, two miles.

Danville, Va.—Graham Bros. have contract for a three-story store building 22½x86 feet for W. H. Rico.

El Paso, Texas—Hospital.—A building will probably be erected for the Hotel Dieu Hospital.

Erwin, Tenn.—J. F. Toney will erect a two-story brick business house 25x100 feet.

Florence, S. C.—School Building.—The plans of C. C. Hook, of Charlotte, N. C., have been selected for a two-story 12 room school building to cost about \$10,000.

Fort Smith, Ark.—School Building.—Rickon & Thompson, of Little Rock, are preparing plans for a \$10,000 school building at Fort Smith.

Fort Worth, Texas—Hall.—The Ruby Lodge, Knights of Pythias, intends erecting a hall building. J. L. Cooper can give information.

Goshen, Va.—Church.—The Methodist Episcopalians will probably build a church.

Greenville, Ala.—School Building.—The city will erect school buildings. Mayor Stienner can give information.

Hillsboro, Texas—Church.—The Methodists will build a church. Rev. M. S. Hotchkiss can be addressed.

Hopkinsville, Ky.—Church.—The Baptists will build a \$20,000 church.

Houston, Texas—School Buildings.—The city has adopted the plans of G. A. Dickey for the Elysian street school building; those of Clayton & Co. for the Cascara school; E. T. Heiner for the first ward school, and J. A. Tempest for the San Felipe school. The aggregate cost is estimated at \$57,000.

Huntington, W. Va.—Hotel.—J. W. Depue will remodel the Florentine Hotel.

Knoxville, Tenn.—College.—Prof. J. Holbrook, of Lebanon, Ohio, reports that there will be erected for his college at Knoxville three college buildings to cost \$30,000, and two smaller structures to cost \$5,000 each. Bids will soon be invited.

La Grange, Ga.—Depot.—The R. D. Cole Manufacturing Co., of Newnan, will shortly commence building the depot for the Atlanta & West Point Railroad Co. (office, Atlanta), previously mentioned.

La Porte, Texas—College.—Kirkland & Comfort, of Syracuse, N. Y., are preparing plans for the building for the Southern College of Fine Arts to be established at La Porte.

Lexington, Va.—School Building.—J. P. Welsh and E. A. Johnston have contract for the school building lately noted. Rose & Will are the architects, and the cost is about \$8,700.

Louisville, Ky.—Warehouse.—The American Tobacco Co. will build a \$7,000 warehouse.

Lynchburg, Va.—Church.—The Methodists contemplate building a church at Rivermont.

Lynchburg, Va.—J. P. Bell has awarded contract to W. B. Snead & Co. for three four story brick dwellings.

Manchester, Va.—Church.—A \$10,000 edifice will be built by the First African Baptist Church. Rev. A. Binga, Jr., can be addressed.

Moundsville, W. Va.—Hotel.—M. F. Geisey, of Wheeling, is preparing plans for a hotel to be built by John Henrietta.

Newport News, Va.—College.—Inducements have been offered Richmond College to build a \$50,000 college at Newport News. G. B. West can give particulars.

Norfolk, Va.—Hotel.—The Point Sewell Hotel Co. has been organized with D. Lowenberg, president; Levi Woodbury, of Washington, D. C., vice president, and J. W. Perry, secretary, to build a hotel at Sewell's Point, near Norfolk, and opposite Old Point Comfort. The capital stock is \$300,000.

Norfolk, Va.—Thomas R. Ballentine is said to contemplate the erection of a \$75,000 building in Norfolk for a charitable institution.

Ocala, Fla.—Jail.—Marion county intends building a new jail in Ocala. The county clerk can give particulars.

Paducah, Ky.—Church.—Brinton B. Davis has prepared plans for a brick and stone edifice 38x103 feet for the Cumberland Presbyterian Church. It will cost \$8,700.

Paducah, Ky.—Hotel.—J. C. Reedy will remodel the Richmond Hotel, putting in electrical elevator, plate and stained glass, steam heat, plumbing, etc. Brinton B. Davis is the architect, and the cost is about \$12,800.

Paris, Texas—Church.—Hunt & Lamm, of Chattanooga, Tenn., have prepared plans for a \$20,000 brick and stone edifice for the Baptist Church. George A. Titterton can be addressed.

Pecos, Texas—Bank Building.—A building will probably be erected for the First National Bank. W. D. Johnson can give particulars.

Richmond, Va.—Hall.—The Phil Kearney Post, G. A. R., expect to erect a hall building.

Roanoke, Va.—The Home Building & Conveyance Co. has closed an agreement with G. W.

Hartman for the erection of eighty cottages in West Roanoke.

Roanoke, Va.—Church.—Ferdinand Hannabuss has secured contract to build an edifice for the High Street Baptist Church.

Roanoke, Va.—Church.—The vestry of Christ Church has purchased a site 60x100 feet for a new edifice. Rev. J. C. Hall can give particulars.

Roanoke, Va.—Churches.—The Methodists will build a church at Belmont and another at Mount View Terrace.

Rome, Ga.—Courthouse.—Contract for building the Floyd county courthouse has been secured by C. C. Green, of Chattanooga, Tenn., at \$43,975. Bruce & Morgan, of Atlanta, prepared the plans.

Roanoke, Va.—Orphanage.—The United Lutheran Synod will probably erect buildings for an orphanage between Roanoke and Salem. P. L. Terry can give particulars.

Strasburg, Va.—Depot.—The Baltimore & Ohio Railroad Co. (office Baltimore) will build a depot.

Sutton, W. Va.—Hotel.—J. H. Daniels and Thomas Black, of Parkersburg, have been awarded contract for the \$15,000 hotel previously reported.

Tampa, Fla.—Stable.—L. G. Cone will erect a large brick stable.

Washington, D. C.—Stable.—Littlefield & Alford will erect a large brick stable and storage warehouse to cost about \$10,000.

Winter Park, Fla.—F. J. Kennard, of Orlando, prepared plans for the \$20,000 residence of L. F. Dommerick, of New York, noted in last issue. The building will be 53x53 feet, and have laundry, etc. Coan Bros. & Alcott have the contract.

Yoakum, Texas—City Hall.—The erection of a city hall is contemplated. The mayor can give particulars.

Yoakum, Texas—Depot.—It is probable that the San Antonio & Aransas Pass Railway Co. (office San Antonio) will build a new depot in Yoakum.

#### RAILROAD CONSTRUCTION.

Alexandria, Va.—Electrical Railroad.—The Alexandria & Fairfax Passenger Railway Co. has let contract for the construction of its electrical railroad from Alexandria to Mount Vernon.

Atlanta, Ga.—Belt Railroad.—The Georgia, Carolina & Northern Railroad Co. (office, Athens) has secured nearly all right of way for its 8-mile belt railroad, and contracts are to be let soon. It is intended to have the road in operation by November 1.

Atlanta, Ga.—Electrical Railroad.—W. I. Zachrey, A. S. Seals and J. R. Mell have been granted a franchise by the city for an electrical railroad, and have applied to Fulton county for a similar privilege.

Baltimore, Md.—Cable Railroad.—The Baltimore City Passenger Railway Co. has awarded contract for cabling its "Blue" line to Edmund Saxton.

Beattyville, Ky.—Railroad.—The Winchester & Beattyville Railroad Co. has awarded contract to Thomson Bros., of Ashland, Ky., for grading its road from a junction with the Kentucky Midland about two miles above Lumber Point to Beattyville, a distance of 5½ miles. A one mile branch will also be built. Robert Wallace, of Versailles, is president, and J. H. Pearson, of Beattyville, chief engineer.

Berea, Ky.—Railroad.—A company is to be chartered to build a narrow-gauge railroad from Berea to the south fork of Station Camp.

Boggy Tank, Texas—Railroad.—The Missouri, Kansas & Texas Railroad Co. (office, Denison), which is surveying for an extension from Coreland to Austin, 26 miles, will soon start survey for its extension from Boggy Tank to Houston, a distance of about 80 miles.

Buckingham, Va.—Railroad.—W. E. Gilliam and J. D. Davis, of New Store, Va., have contract for building part of the Buckingham & Lumber Co.'s railroad from Arvon to Rosney, previously reported.

Charleston, W. Va.—Electrical Railroad.—The Charleston Street Railway Co. is arranging to equip its road with electricity.

Charleston, W. Va.—Railroad.—Worthington, Elliott & De Bardeleben, contractors for building thirty miles of the Charleston, Clendenin & Sutton Railroad, have commenced tracklaying.

Cookeville, Tenn.—Railroad.—The Nashville & Knoxville Railroad Co. (office, Lebanon) is pushing its extension from Cookeville to Standing Stone, a distance of sixteen miles, and expects to have it completed by November 1. About nine miles of track is already laid.

Emerson, Ga.—Railroad.—The building of a railroad from Emerson to the Brown ore mines has been commenced.

Fayetteville, W. Va.—Railroad.—The Coal Run & Fayetteville Railroad Co. has been chartered by George W. McVey and others to build a railroad from a point opposite East Sewell, in Fayette county, to Fayetteville. The capital stock is \$150,000.

Galveston, Texas—Railroad.—The North Gal-

veston, Houston & Kansas City Railway Co., lately noted as chartered to build a railroad from the Edwards league, in Galveston, to Virginia Point, a distance of sixteen miles, is advertising for bids, and expects to equip its road thoroughly.

Harrison, Miss.—Railroad.—The Illinois Central (office, Chicago), now in control of the Louisville, New Orleans & Texas Railroad, contemplates widening the gauge of the Natchez, Jackson & Columbus division of that road from Harrison to Jackson, a distance of about seventy miles.

Hollow Rock, Tenn.—Railroad.—Sullivan, Johnson & McLaughlin have contract for grading the extension of the Paducah, Tennessee & Alabama Railroad (office, Paducah, Ky.) from Hollow Rock to Lexington, a distance of thirty miles. M. S. Carter & Co., of St. Louis, Mo., have contract for the bridge work.

Hot Springs, Ark.—Railroad.—The Mountain View Railway Co. has petitioned Congress for authority to build through the United States reservation at Hot Springs.

Louisville, Ky.—Belt Railroad.—T. C. H. Vance, of the Louisville Terminal Railway Co., which will build the belt railroad lately mentioned, reports that contract has been let and work commenced. Electric power will be used for passenger traffic, and steam for freight.

Macon, Ga.—Electrical Railroad.—The Bibb county commissioners have granted the Consolidated Street Car Co. permission to operate its lines with electricity along certain roads.

Mobile, Ala.—Electrical Railroad.—The Mobile & Spring Hill Railway Co. and the Mobile Street Railway Co. have been granted an extension until February next of the limit of time for the commencement of work on the equipping of their roads with electricity.

Montgomery, Ala.—Railroad.—The Alabama Grand Trunk Railroad Co., lately reported as expecting to soon resume the construction of its railroad, has received propositions for the furnishing of iron and grading of the road to Round Mountain.

Natchitoches, La.—Railroad.—W. B. Allen has commenced surveying the extension of the Natchitoches Railroad, lately reported, from Natchitoches to the Red river.

Piedmont, Ala.—Railroad.—It is stated that work will soon commence on the Piedmont, Laney & Birmingham Railroad, previously reported. J. C. Laney, of Laney, Ala., can give particulars.

Richmond, Va.—Railroad.—The Richmond & Chesapeake Railroad Co., which recently awarded contract for completing its tunnel at Richmond, has effected financial arrangements for building its railroad, and it is understood also let contract for same. The road is projected to some point on Chesapeake bay.

Salisbury, Md.—Street Railway.—L. E. Williams, J. A. Perry, C. L. Waller and others contemplate building a street railway.

Scottsboro, Ala.—Railroad.—The Columbus City, Birmingham & Louisville Railroad Co. will shortly commence the construction of its road from Scottsboro to Columbus City. J. R. Harris can give information.

Stevenson, Ala.—Railroad.—The Memphis & Charleston Railroad Co. (office, Memphis) uses the tracks of the Louisville & Nashville between Stevenson and Chattanooga, a distance of thirty-eight miles, at an annual rental of \$60,000. The latter intends, it is stated, increasing the rental to \$100,000 per year at the expiration of the present contract, which will be within the next six months. This proposed action will, it is believed, cause the Memphis & Charleston to take steps at an early date towards the building of a road of its own between the two cities. A complete survey of the route was made some time ago, and the cost of constructing such line is estimated at \$1,200,000.

#### MACHINERY WANTED.

If you desire to purchase machinery of any kind consult our advertising columns, and if you cannot find just what you wish, send us particulars as to the kind of machinery needed. We will make your wants known free of cost, and in this way secure the attention of machinery manufacturers throughout the country. You will thus get all information desired as to prices, etc.

Belting.—F. P. Rockett, Hickory, N. C., will want belting.

Boiler.—F. P. Rockett, Hickory, N. C., will want a boiler.

Boiler.—A. S. Canuet, Savannah, Ga., wants a six or eight horse-power boiler.

Boilers, etc.—T. M. Benson, Newport News, Va., will receive scaled proposals until August 4 for the furnishing and placing in position of



boiler and radiators, completing the steam heating of the new courthouse, etc.

Brick Machine.—C. F. Wells, Dermott, Ark., wants a press brick machine.

Cotton mill Machinery.—W. J. Hubbard, Shuqualak, Miss., expects to buy some cotton-mill machinery, and if so will want a 5,000 spindle plant in the fall.

Crushing Machinery.—W. B. Merritt, Williamson, W. Va., wants prices on machinery for crushing railroad ballast.

Engine.—F. P. Rockett, Hickory, N. C., will want an engine.

Evaporator.—A. S. Canuet, Savannah, Ga., wants a steam evaporator for refining syrup.

Grinding Machinery.—Jno. W. Buck, care of Howard Bryant, 112 E. Lexington street, Baltimore, Md., will want machinery for grinding hard rock.

Ice Factory.—The Crisfield Ice Manufacturing Co., Crisfield, Md., is in the market for an ice plant of twenty tons daily capacity. Address W. F. Hall.

Locomotive.—Thos. Newman, Williamsburg, Va., wants a second-hand logging locomotive, about ten horse-power.

Planer.—F. P. Rockett, Hickory, N. C., will want a planer.

Planer.—Wm. M. Thornton, Charlottesville, Va., wants bids on a planer for metal work not to cost over \$500.

Planer.—The Claremont Manufacturing & Improvement Co., Claremont, Va., may want a planer. Wm. Dillard, secretary.

Pump.—The McCoy Brick & Tile Co., Augusta, Ga., wants a good second-hand fire pump with 4-inch discharge, to be used as feed pump for boilers.

Rails.—D. W. Alderman, Alcola, S. C., wants cash prices on one mile of 25-pound rails, also on 30-pound rail, either new or second-hand, including joints, f. o. b. Charleston, S. C.

Resaw, etc.—E. S. Adkins, Salisbury, Md., may need a resaw and other machinery.

Rollers.—J. A. Gillespie, Roanoke, Va., wants prices on new or second-hand fire pump or horse rollers of about six or seven tons weight.

Saw Mill.—F. P. Rockett, Hickory, N. C., will want a saw mill.

Shingle Machine.—F. P. Rockett, Hickory, N. C., will want a shingle machine.

Shingle Machine.—The Virginia Soapstone Co., Schuyler, Va., wants a shingle machine of medium capacity and moderate cost.

Tannery Machinery.—The Lone Star Leather Co., Tyler, Texas, is in the market for an unhairing, hideworking and scouring machine and a collar rod press.

Telephone Supplies.—S. T. Kimball, U. S. Life Saving Service, Washington, D. C., will receive sealed proposals until July 21 for furnishing certain telephone supplies.

Woodworking Machinery.—The Claremont Manufacturing & Improvement Co., Claremont, Va., may need machinery for cutting strips for baskets, barrels, etc.

J. A. Chew, manager, Goshen, Va., wants prices and information on barrels for shipping paint dry.

Messrs. Horton & Gurd, of Rees Tannery, W. Va., desire to correspond with the Carolina Iron Works.

Thos. L. Holt, Burlington, N. C., wants addresses of merry-go-round manufacturers.

W. B. Merritt, of Williamson, W. Va., wants prices on tents.

Wm. Goldsmith, Jr., of Greenville, S. C., wants to correspond with manufacturers of clay or terra-cotta pipe with flange inside and outside.

## SOUTHERN FINANCIAL NEWS.

### New Banks.

Burkeville, Va.—The Bank of Burkeville, previously reported as organized with H. T. Bardwell, president; J. D. Bradshaw, vice-president, and J. D. Hughes, cashier, has commenced business. The capital stock is \$10,000.

Cheraw, S. C.—The Bank of Cheraw has added a savings department.

Columbia, S. C.—The Farmers and Mechanics' Bank, noted in last issue as organized, has a capital stock of \$50,000.

Dublin, Ga.—The Dublin Bank will soon commence business with James H. Williams, president; R. C. Henry, vice president, and J. M. Tinn, cashier.

Florence, Ala.—The Merchants' Bank, lately noted, has commenced business with a capital stock of \$25,000.

Roanoke, Va.—The Board of Trade, it is stated, received a proposition for the organization of a new national bank in Roanoke.

Shepherdstown, W. Va.—The Jefferson Savings Bank, whose capital was impaired by the Nicholson Bank failure at Baltimore, has been reorganized and nearly \$25,000 additional capital put in.

W. N. Lemen is president, and B. F. Harrison, cashier.

Americus, Ga.—The Americus Grocery Co. has declared a semi-annual dividend of 6 per cent.

Atlanta, Ga.—The Manchester Investment Co. has declared a semi-annual dividend of 5 per cent.

Augusta, Ga.—The John P. King Manufacturing Co. has declared a semi-annual dividend of 3 per cent., and the Commercial Bank, 2 per cent.

Baltimore, Md.—Semi-annual dividends as follows are declared: Home Fire Insurance Co., 5 per cent; German-American Fire Insurance Co., 3 per cent; and the Firemen's Insurance Co., 3 per cent; the National Fire Insurance Co. has declared a dividend of 3 per cent., and the Baltimore & Fredericktown Turnpike Road Co., ½ per cent.

Centreville, Md.—The Centreville National Bank has declared a semi-annual dividend of 5 per cent.

Charlottesville, Va.—The People's National Bank has declared a semi-annual dividend of 5 per cent.

Dalton, Ga.—The city is offering for sale \$17,000 of 6 per cent. bonds, issued to take up outstanding maturing bonds. The mayor can be addressed.

Dawson, Ga.—The Dawson National Bank has declared a semi-annual dividend of 5 per cent.

Fernandina, Fla.—The Nassau Commercial & Land Investment Co. has been chartered by Samuel Pelty, T. T. Watson, R. S. Mitchell and others. The capital stock is \$10,000.

Georgetown, Ky.—The Deposit Bank has declared a semi-annual dividend of 5 per cent.

Greenville, Tenn.—The bonds noted in last issue as voted by the town for school purposes are 30-year 6 per cent. bonds, and amount to \$12,000. The corporation, as well as the county, is out of debt. J. B. Spencer, mayor, can be addressed.

Henderson, Ky.—The Henderson National Bank has declared a dividend of 30 per cent., 5 per cent. of which is out of earnings for the last six months and the remainder from the surplus. The Henderson Cotton Mills, Ohio Valley Bank and Planters' Bank have each declared a semi-annual dividend of 4 per cent.

Hustonville, Ky.—The National Bank of Hustonville has declared a 3 per cent. dividend.

Johnson City, Tenn.—The Watauga Bank will pay a semi-annual dividend of 3½ per cent.

Louisville, Ky.—The Falls City Insurance Co. (in liquidation) has declared a dividend of 20 per cent.

Louisville, Ky.—The Bank of Kentucky has declared a semi-annual dividend of 4 per cent.

Louisville, Ky.—The Louisville & Nashville Railroad Co. has declared a semi-annual dividend of 2 per cent.

Lumpkin, Ga.—The Bank of Stewart County has declared a semi-annual dividend of 5 per cent.

Lynchburg, Va.—The Glamorgan Co. has declared a semi-annual dividend of 5 per cent.

Memphis, Tenn.—Semi-annual dividends as follows are declared: State National Bank, 6 per cent; Bank of Commerce, 4 per cent; Union and Planters' Bank, 5 per cent; American Building, Loan and Tontine Savings Association, 9 per cent., and the Commercial Bank, 2 per cent.

Monroe, La.—The Monroe National Bank has declared a semi-annual dividend of 4 per cent.

Montgomery, Ala.—The First National Bank has declared a semi-annual dividend of 4 per cent.

New Orleans, La.—The St. Charles Street Railroad Co. has declared a dividend of 2 per cent., and the Whitney Iron Works Co., 10 per cent.

Norrisville, Md.—A building and loan association has been formed with J. Wiley Norris, president.

Paris, Ky.—The Deposit Bank has paid a semi-annual dividend of 3 per cent., and Citizens' Bank 4 per cent.

Pensacola, Fla.—The First National Bank has declared a semi-annual dividend of 6 per cent.

Portsmouth, Va.—The Bank of Portsmouth has declared a semi-annual dividend of 3 per cent.

Richmond, Va.—Semi-annual dividends as follows are declared: National Bank of Virginia, 1 per cent.; Virginia Fire & Marine Insurance Co., 5 per cent.; Planters' National Bank, 5 per cent.; Old Dominion Steamship Co., 3 per cent.; City Bank, 3 per cent.; Richmond Perpetual Building, Loan & Trust Co., 5 per cent.; Virginia State Insurance Co., 3 per cent., and the Citizens' Bank, 3 per cent.; the Richmond, Frederickburg & Potomac Railroad Co. has declared a dividend of \$3.50 per share, and the State Bank, 3½ per cent.

Richmond, Va.—The German-American Fire Insurance Co. has been chartered with Alfred Howard, of Philadelphia, Pa., president, and William P. De Saussure, vice president. The capital stock is \$100,000.

Richmond, Va.—The Richmond & Chesapeake Railroad Co., E. N. Reid, president, has executed a mortgage in favor of the Farmers' Loan & Trust Co., of New York city, to secure an issue of \$4,500,000 bonds.

Rome, Ga.—The Rome Fire Insurance Co. has declared a 15 per cent. liquidation dividend.

Shelbyville, Ky.—The Farmers and Traders' Bank and the Bank of Shelbyville have each declared a semi-annual dividend of 4 per cent.

Tampa, Fla.—The Tampa Street Railway & Power Co. will issue \$200,000 of bonds.

Wilmington, N. C.—The Wilmington & Weldon Railroad Co. has declared a dividend of 4 per cent., and the Wilmington, Columbia & Augusta Railroad Co., 3 per cent.

Winchester, Va.—The Shenandoah Valley National Bank has declared a semi-annual dividend of 5 per cent.

## TRADE LITERATURE.

THE June price list of the Syracuse Twist Drill Co. has been issued, giving the price, description and illustration of the drills and holders manufactured by this company. This price-list supercedes all others.

THE Weinman Machine Works, of Columbus, Ohio, has issued a catalogue of steam pumps and hydraulic machinery. A number of different pumps are shown in cuts, and tables are given of the capacity, size and price of each one.

A NEAT little pamphlet, entitled "Light on Lubrication," has been issued by the Lubrolene Oil Co. It contains a brief mention of the early use of illuminating and lubricating oils, and follows with a description of the particularly valuable features of the lubricants manufactured by the company.

THE P. H. & F. M. Roots Co. has sent out a neat desk-weight in the form of a glass half sphere, on the under side of which is stamped in the glass an engine and gas exhauster, and above and below it the articles manufactured by this company, with their name and address. The engine is gilt and the text in blue, which, with the ground glass on the under side, gives a particularly neat effect.

"ROUTES AND RATES FOR SUMMER TOURS" is the title of a valuable guide for summer tourists. It is published by the passenger department of the Baltimore & Ohio Railroad, and gives in detail the means of reaching some hundreds of summer resorts and of making tours by which many can be seen. The guide is put together in an attractive and convenient form and illustrated by cuts of different places.

THE Stow Manufacturing Co., of Binghamton, N. Y., have issued catalogue No. 4 of their flexible shafts and tools used in connection with it. Numerous illustrations are given of the various uses to which these flexible shafts are applied and prices of both the shaft and its parts. For those who have heavy or light work to do in places where a machine cannot conveniently be used, a glance over this catalogue will be interesting.

THE catalogue of the Vulcan Iron Works Co., Toledo, Ohio, presents illustrations of the steam shovels and dredges manufactured by them. These shovels are coming into general use in mining operations, as well as railroad excavating, and this catalogue deserves the attention of all engaged in either class of work. A number of cuts from photographs of the machines operating in different places are given, together with full descriptions and many testimonial letters as to the value of the work performed in the different places.

THE E. W. Bliss Co., Limited, of Brooklyn, N. Y., have published the ninth edition of their catalogue and price-list of presses, drop hammers and other machinery for which they are well known. The catalogue is in book form, handsomely bound and fully illustrated. The dimensions, power and price of machines are given, and also the class of work for which they are most suitable. Diagrams are shown of various forms of dies, and a great deal of valuable information concerning them and the other tools made. The circular is indexed and has a business-like appearance which will commend it to all users of this class of machinery.

To those who contemplate a summer trip and wish for information as to different resorts and how to reach them, no more useful guide can be given than that published by the Norfolk & Western Railroad on the summer resorts in Virginia. This publication is in the form of a railroad folder, and within it is a time table showing connections, a map showing the location and a little note descriptive of each of the most beautiful resorts on or near its line. These Virginia summer resorts are becoming better known each year, and the facilities for reaching them over this railroad, which is unquestionably the "Pennsylvania" road of the South, combine comfort and convenience.

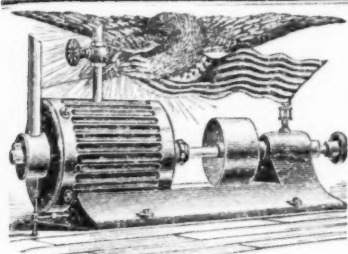
## How to Keep Cool.

If you are looking for pleasant locations to spend hot days at moderate cost, write to D. G. Edwards, G. P. A., Q. & C. Route, Cincinnati, O., for copy of Queen & Crescent Book, entitled, "Summer Days" which will be mailed promptly free of charge.

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**WANTED—A PRACTICAL MAN** to take charge of a canning establishment upon Indian River, with or without capital. Must be thoroughly sober and energetic. Address R. P. PADDISON, Titusville, Fla. A5

**WANTED—AN EXPERIENCED, RELIABLE MAN** to manage a Steam Laundry. Address HENRY E. FALES, Harriman, Tenn. 5

**WANTED—Experienced and Reliable Man** as SUPERINTENDENT of a Canning Factory. Address J. S. GOFF & CO., Batesville, Miss. J29

**WANTED—A FOREMAN** to take charge of a Planing Mill in North Carolina, with a capacity of 20 M feet per day. Must thoroughly understand the keeping of the machinery and getting out the lumber for the Northern and Eastern markets. Must be sober and reliable and a hustler. State salary required. Apply to J. HICKSON & CO., Lynchburg, Va. J29

**WANTED—TRAVELING SALESMEN** for Pennsylvania and territory tributary to Cincinnati. Must have experience in planning, estimating and constructing Hot Water Heating Plants. State age, record, and with whom. Must be an order getter. Unexceptional references required. Address "HOT WATER HEATER," care MANUFACTURERS' RECORD. J29

**WANTED—A man** thoroughly posted in improved methods of Tanning, also reliable finisher. Address COMER & SMITH, James P. O., Ala. J22

**WANTED—A man** who understands the business to join me in working and preparing GRAPHITE for market. W. P. POLAND, Llano, Texas. J22

**WANTED—Experienced Man** to join the advertiser in manufacturing PLUG TO-RACCO. Good opening for the right man. Address "TOBACCO," care MANUFACTURERS' RECORD. J22

### SITUATIONS WANTED.

**WANTED—A position** in the South by a Mechanical Engineer and Draughtsman, age thirty-three. Fifteen years' experience in railroad, mechanical and general engineering; is familiar with constructions in iron, steel and wood, and capable to design and supervise the construction of manufacturing plants. Best of references. Address "AJAX," care MANUFACTURERS' RECORD. A5

**WANTED—Position** by a young man (twenty-two); is Stenographer, Typewriter and Double-Entry Bookkeeper; good penman and has fine English education; moderate salary to commence with. Can furnish machine. Address "MACK," care MANUFACTURERS' RECORD. A5

**SECRETARY—A thoroughly competent** Stenographer and Typewriter, age 24, now holding position as secretary in manufacturing industry, desires to make a change. Satisfactory reasons given. Address "SECRETARY," care MANUFACTURERS' RECORD. A5

**J. E. MINTER,** traveling salesman for Henry Stevens' Sons, sewer pipe and fire brick manufacturers, Macon, Ga., wants a side line that would suit the same trade. Address as above. J29

**WANTED—A POSITION** by a young man age 23 years, with some knowledge of Bookkeeping, also some experience in Hardware Business and Planing Mill. Good reference. Address MAURICE CRIPPS, Graig City, Va. J29

**WANTED—Situation**, by a PRACTICAL MILLWRIGHT who is skilled in every branch of the trade. Best of references given. Address "MILLWRIGHT," care of J. H. Boyd, Box 144, Manchester, Va. J22

**WANTED—Situation** as NIGHT WATCHMAN, by a sober and reliable man of twenty years' experience. References. Can leave Cincinnati. Address W. C. KNIGHT, 31 Main St., Cincinnati, Ohio. J22

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Washington Laboratory and Metallurgical Works, 621 F. Street, N. W. Washington, D. C.

### PROPOSALS.

#### NOTICE TO CONTRACTORS.

MAYOR'S OFFICE, ASHEVILLE, N. C., June 30, 1892. SEALED PROPOSALS will be received by the Mayor and Joint Board of the City of Asheville, at this office, until 3 o'clock P. M., on the 1st day of August, 1892, for furnishing and setting up in the pump house on the Swannanoa River, one Steam Pumping Engine and Boiler, capacity 1,000,000 gallons in 24 hours; one Power Pump and Water Wheel, capacity 750,000 gallons in 24 hours. Also for furnishing and laying about three miles of 16-inch Cast Iron Water Pipe. Plans can be seen and specifications obtained at the office of the City Engineer, Asheville, N. C. C. BLANTON, Mayor.

B. M. LEE, City Engineer.

**TREASURY DEPARTMENT,** Office, Supervising Architect, Washington, D. C., June 29, 1892. SEALED PROPOSALS will be received at this office until 2 o'clock P. M. on the 27th day of July 1892, and opened immediately thereafter for all the labor and materials required for the erection and completion (except plumbing and heating apparatus) of the United States Post-office Building at Ashland, Wisconsin, in strict accordance with drawings and specification, copies of which may be had on application at this office or the office of the Superintendent at Ashland, Wisconsin. Each proposal must be accompanied by a certified check for a sum not less than 2% of the amount of the proposal. The right is reserved to reject any and all bids and to waive any defect or informality in any bid, if it be deemed in the interest of the Government to do so. All bids received after the time stated will be returned to the bidders. Proposals must be enclosed in envelopes sealed and marked "Proposals for the erection and completion (except plumbing and heating apparatus) of the U. S. Post-office Building at Ashland, Wisconsin, and addressed to W. J. EDBROOKE, Supervising Architect.

**TREASURY DEPARTMENT,** Office Supervising Architect, Washington, D. C., July 2, 1892. SEALED PROPOSALS will be received at this office until 2 o'clock P. M. on the 24th day of August, 1892, and opened immediately thereafter, for all the labor and materials required for the Excavation, Foundations, Cut Stone and Brick Work, Iron and Wood Floor and Roof Construction, Roof Covering, Approaches, &c., for the U. S. Postoffice Building at Fort Dodge, Iowa, in accordance with the drawings and specification, copies of which may be had on application at this office or the office of the Superintendent at Fort Dodge, Iowa. Each bid must be accompanied by a certified check for a sum not less than two per cent. of the amount of the proposal. The right is reserved to reject any or all bids and to waive any defect or informality in any bid should it be deemed in the interest of the Government to do so. All proposals received after the time stated will be returned to the bidders. Proposals must be enclosed in envelopes, sealed and marked "Proposals for the Excavation, Foundations, Cut Stone and Brick Work, Iron and Wood Floor and Roof Construction, &c., for the U. S. Postoffice building at Fort Dodge, Iowa, and addressed to W. J. EDBROOKE, Supervising Architect.

**TREASURY DEPARTMENT,** Office Supervising Architect, Washington, D. C., July 8th, 1892. SEALED PROPOSALS will be received at this office until 2 o'clock P. M. on the 3rd day of August, 1892, and opened immediately thereafter, for all the labor and materials required for the stone and brick work, roof covering, approaches, &c., for the superstructure, and also for the cast-iron columns, steel floor, ceiling and roof construction, &c., of the U. S. Courthouse, Postoffice, &c., building at Wilmington, Delaware, in accordance with the drawings and specification, copies of which may be had at this office or the office of the Superintendent at Wilmington, Delaware. Each bid must be accompanied by a certified check for a sum not less than 2 per cent. of the amount of the proposal. The right is reserved to reject any or all bids, and to waive any defect or informality in any bid, should it be deemed in the interest of the Government to do so. All bids received after the time stated will be returned to the bidders. Proposals must be enclosed in envelopes, sealed and marked "Proposals for the Stone and Brick Work, Roof Covering, Approaches, &c., for 'Cast-Iron Columns, Steel Floor, Ceiling and Roof Construction &c., of the U. S. Courthouse, Postoffice, &c., building at Wilmington, Delaware,' and addressed to W. J. EDBROOKE, Supervising Architect.



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**MACON—Exchange Bank,** H. J. Lamar, President; J. W. Caban's, Cashier. Capital and surplus \$550,000.

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JAMES ALLAN, of James Allan & Co., jewelers.

J. H. F. KORNIG, with Knapp Frerichs & Co., cotton exporters.

Geo. B. EDWARDS, First. Elec. Lt. & Power Co.

### SOLICITORS OF PATENTS.

For the convenience of a large number of readers of the MANUFACTURERS' RECORD who require the services of reliable Patent Attorneys, the appended directory is given. Those of our readers who may correspond with the Attorneys here mentioned, will confer a favor upon both advertiser and publisher by mentioning the MANUFACTURERS' RECORD.

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THE NATIONAL CORDAGE COMPANY. New York, July 5th, 1892.

The Board of Directors of THE NATIONAL CORDAGE COMPANY have this day declared the regular quarterly dividends of TWO PER CENT. on the Preferred and TWO AND ONE-HALF PER CENT. on the Common Stock of the Company, both payable on the 1st day of August next at the transfer office of the Company, 135 Front St., this city. The transfer books will close July 15 at 3 o'clock P. M. and reopen August second next. CHARLES DAVIS, Treasurer.

**The Boomer & Boschert**

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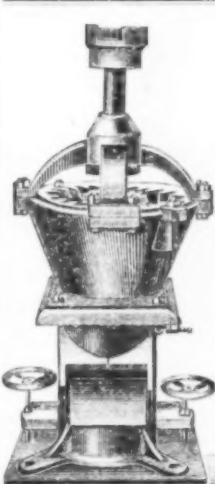
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THE CITY OF ATLANTA, TEXAS, is situated on the Texas & Pacific Railway, in Cass county, and has a population of 4,500 people.

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The road running east goes into the bottom of the Red River, where there is enough hard wood accessible to run a dozen furniture factories a hundred years.

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WE OFFER A LIBERAL BONUS IN THE WAY OF MONEY DONATIONS, exemption from taxation a number of years, and the giving of a tract of land large enough for the erection of the factory and its proper accommodations to any firm, company or individual who will erect and run a furniture factory of respectable proportions. Those desiring to engage in the furniture manufacturing business who have capital to invest cannot find a more suitable place than Atlanta, Texas. A personal investigation invited. Address R. R. LOWERY, Mayor, Atlanta, Texas.

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Gustavus C. Hopkins. Lucius Hopkins Smith.  
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### THE AMERICAN COTTON OIL CO.

29 BROADWAY, New York, May 31st, 1892.

#### CALL NO. 1.

To the holders of the Eight Per Cent. Debenture Bonds of The American Cotton Oil Company.

#### NOTICE

Is hereby given that \$210,000 par value of the Eight Per Cent. Debenture Bonds of The American Cotton Oil Company were this day drawn by lot by the Central Trust Company of New York for redemption pursuant to the conditions upon and subject to which these bonds have been issued. The bonds so drawn are numbered as follows, viz:

10	522	1175	1636	2061	2626	3287
20	523	1188	1646	2075	2676	3289
35	530	1190	1647	2101	2680	3291
60	583	1191	1649	2103	2708	3295
81	620	1192	1650	2129	2732	3311
101	696	1210	1652	2152	2749	3314
107	712	1255	1674	2165	2779	3355
108	716	1256	1695	2176	2823	3358
170	717	1262	1705	2174	2829	3380
188	736	1263	1751	2179	2856	3400
190	747	1283	1797	2223	2908	3402
237	748	1301	1829	2235	2967	3453
280	751	1344	1858	2238	2978	3458
294	756	1356	1860	2246	2991	3469
327	767	1387	1880	2257	3014	3486
330	822	1406	1883	2300	3024	3496
345	826	1427	1884	2377	3139	3502
348	843	1429	1888	2390	3145	3522
366	847	1449	1903	2397	3149	3547
369	856	1465	1920	2400	3159	3598
367	889	1471	1925	2411	3165	3608
433	897	1484	1932	2424	3167	3647
442	905	1549	1943	2468	3191	3665
465	934	1541	1944	2469	3192	3669
470	945	1542	1971	2479	3193	3750
475	947	1548	1979	2480	3206	3766
477	1033	1568	1986	2522	3215	3809
478	1040	1569	2002	2540	3216	3880
483	1070	1571	2020	2554	3270	3893
509	1173	1621	2055	2577	3280	3934

These Bonds will be paid and redeemed by this Company at par and accrued interest, with 10 per cent. added to the principal thereof, Aug. 1, 1892, upon presentation at the banking house of Messrs. Winslow, Lanier & Co., No. 17 Nassau St. in the City of New York.

The interest upon the above-described Bonds will cease on and after Aug. 1, 1892.

By order of the Board of Directors,

JUSTUS E. RALPH, Treasurer.

Full payment of the above-described Bonds, with interest at eight per cent. per annum to Aug. 1, 1892, being \$1,120 for each \$1,000 bond, will be anticipated upon presentation at our office, subject to an allowance of interest at 3 per cent. per annum for account of The American Cotton Oil Company.

WINSLOW, LANIER & CO.

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Parties with Capital may find an unequalled opportunity for investment in extending an original and most paying patent, by addressing

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35 foot Elevator.

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Valuable Coal, Iron and Timber Lands in the South.

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- 2 150 horse-power, at Atlanta, Ga.
- 2 150 horse-power, two 45 horse-power and one 60 horse-power, at Savannah, Ga.
- 2 45 horse-power, one 60 horse-power and one 100 horse-power, at Columbia, S. C.
- 1 75 horse-power, at Houston, Texas.

ALSO LIST OF DISPLACED HYDRAULIC PUMPS, IN GOOD RUNNING ORDER, MADE BY THE SMITH & VAILE CO. AND NOW AT THE FOLLOWING MILLS OF THE SOUTHERN COTTON OIL CO:

- Houston, 10; New Orleans, 8; Montgomery, 5;
- Atlanta, 5; Memphis, 5; Little Rock, 5; and Savannah, 1—in all 39.

## Steel Saw Mills

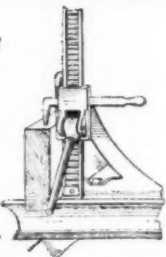
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Steel Set Works

Steel Set Shaft

Steel

"Out & Out"



Being compact run easier, being strong last longer, being simple **COST LESS MONEY** than any Saw Mill in the Southern States.

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We have a large lot of very fine OAK, POPLAR, SWEET GUM and SHELLBARK HICKORY, which we are prepared to cut to order. Millmen and others desirous of handling such wood will find it advantageous to communicate with us.

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Montgomery Stave & Eldg. Co., Montgomery, Ala.  
J. C. Sheets & Co., Montgomery, Ala.  
P. V. Deland, Black Rock, Ark.  
Hammett & Bailey S. ave Co., Greenway, Ark.  
Arkansas Stave Works, Greenway, Ark.  
J. F. Hasty & Son, Paragould, Ark.  
G. M. Rosegrat, Paragould, Ark.  
Wilson Bros., Piggott, Ark.  
Buckus Bros., Pine Bluff, Ark.  
Little Rock Cooperage Co., Little Rock, Ark.  
Tampa Lumber Co., Tampa, Fla.  
Hagan & Platt, Pine Level, Fla.  
R. H. Brewer, Cedar town, Ga.  
Georgia & Tennessee Lumber Co., Laconite, Ga.  
F. H. Waring & Co., Cement, Ga.  
Allen & Briggs, Bardwell, Ky.  
F. B. Freeman, Cumberland Falls, Ky.  
Johnson & Overshiner, Hopkinsville, Ky.  
T. H. Meehan, Louisville, Ky.  
J. G. Evans & Co., Moorehead, Ky.  
Tippett & Co., Moorehead, Ky.  
Edward Farley, Paducah, Ky.  
Lester & Little, Sloans Valley, Ky.  
Pinnell & Webb, Somerset, Ky.

George D. Eike, New Orleans, La.  
E. O. Felton, Ronceverte, W. Va.  
J. Beckwith & Co., Waverly, W. Va.

## Railroad Ties.

W. J. Felt, Greenup, Ky.  
G. & A. Kopp, Louisville, Ky.  
Southern Tie & Lumber Co., Louisville, Ky.  
James S. Pope, Halls, Md.  
P. L. Conquest & Co., Norfolk, Va.

## Spokes and Handles.

Jacob Wise & Son, Fulton, Ky.  
Paducah Handle Works, Paducah, Ky.  
Hendersonville Mfg. Co., Hendersonville, N. C.  
Rutherfordton Sp. & Hdl. Fy., Rutherfordton, N. C.  
C. J. Dundas, Statesville, N. C.  
Thomasville Spoke Works, Thomasville, N. C.  
Johnson Bros., Brownsville, Tenn.

## Southern Real Estate Directory.

For the convenience of the many readers of the MANUFACTURERS' RECORD it has been deemed advisable to collect under this head a complete and reliable list of the leading Realty Agencies of the Southern States. The value of such a list for the purpose of Ready Reference will immediately become apparent to all who are interested in the growth of this section.

## DISTRICT OF COLUMBIA.

WASHINGTON, D. C.—Chas. A. McEuen, Real Estate, Loans and Insurance. 1420 F. St.

## GEORGIA.

AUGUSTA—Mulherin & Armstrong, Real Estate and Insurance. Loans negotiated.  
MACON—American Investment & Loan Co., owns valuable Real Estate in and around Macon. Real estate secured for investors.  
SAVANNAH—Jackson & Whitley, Counselors at Law. Real Estate and Collection Department. W. G. Woodfin, manager.

## NORTH CAROLINA.

MARION—W. H. Roberts & Co., Real Estate, banking and insurance.  
ROCKY MOUNT—Geo. S. Martin, Town Lots, Acre Property, Farms.  
NORTH WILKESBORO—W. F. Trogon, Town Lots and Farm Lands.  
OLD FORT—O. H. Blocker, Real Estate, Timber and Mineral Lands.  
STATESVILLE—P. C. Carlton, Real Estate, Timber and Mineral Lands.  
WINSTON—E. R. Amis, Real Estate. First-class investments a specialty.

## SOUTH CAROLINA.

COLUMBIA—Geo. W. Parker & Co., Real Estate and Insurance. Loans Negotiated.  
COLUMBIA—Sale & Simmons, Real Estate, Stocks and Bonds. Loans negotiated.

## TENNESSEE.

MEMPHIS—Hodge & Bro., 59 Madison St., Real Estate Agents and Dealers.

## VIRGINIA.

CHARLOTTESVILLE—J. C. McKennie & Co., Real Estate and Insurance Brokers.  
NEWPORT NEWS—W. E. Barrett & Co., Real Estate & Ins. Correspondence solicited.  
NEWPORT NEWS—Cottrell & Fitzsimmons, Real Estate. Correspondence invited.  
NORFOLK—A. W. Cornick & Co., Real Estate Agents, 102 Main Street.

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FREE POWER, LOCAL SUPPLY OF HICKORY AND WHITE OAK. Contributions of Timber and Brick toward building factory. Skilled labor \$1.50 per day. First class freight facilities. Non-malarial Southern climate. Business proposition to business people. Locating agents need not apply.

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CHANCE FOR A BROOM AND BRUSH MAN—NEW MACHINERY AND ENGINE FOR BROOM AND BRUSH MAKING, also Factory Building and site subscribed toward the stock of a Company. The proper parties need have little more than the working capital. Perhaps a partnership could be arranged.

See advertisement next above, J. W. RUMPLE, President.

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J. J. COILE & CO., Mount Horeb, East Tennessee, make Telegraph Lines in complete working order a specialty. Wiring by Contract at Low Figures. WORK GUARANTEED FIRST-CLASS. Correspondence Solicited.

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Shryock's Wharf, Baltimore, Md.  
Correspondence Solicited.

## BALTIMORE AND EASTERN SHORE RAILROAD COMPANY.

BALTIMORE & EASTERN SHORE RAILROAD SUMMER SCHEDULE, in effect JUNE 27, 1892. Leave Pier No. 9, Light street, by Steamer B. S. Ford, daily (except Sunday) for Claiborne, thence by rail for Ocean City and intermediate points, 7.00 A. M. and 3.45 P. M. Arrive from the above points 3.00 P. M. and 11.00 P. M., except the 11.00 P. M. on Sundays instead of Saturdays.

Freight received and forwarded every week-day for all points on the Eastern Shore. Full particulars at Office, Pier No. 9 Light street wharf, or to the undersigned. Cheap Day Excursion to Claiborne. Write or call for information.

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Pig Iron.  
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No. 3 Arcade, Chattanooga, Tenn.

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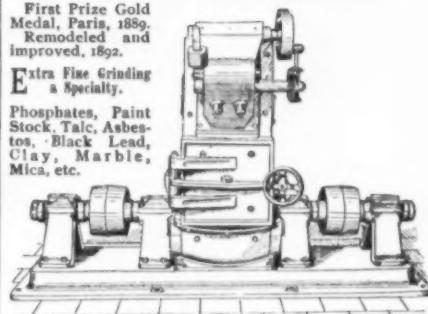
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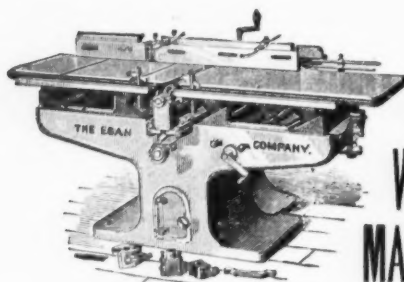
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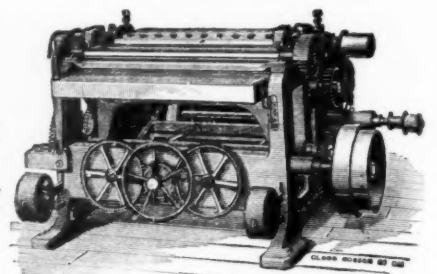
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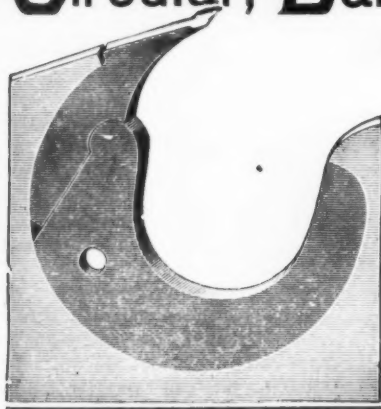
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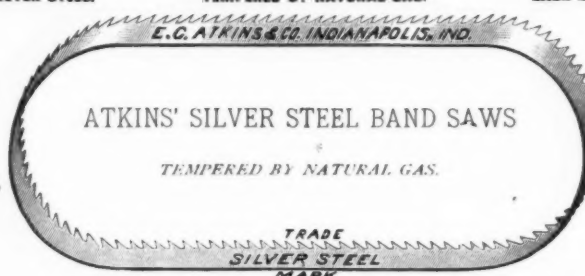


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EACH SAW WARRANTED.

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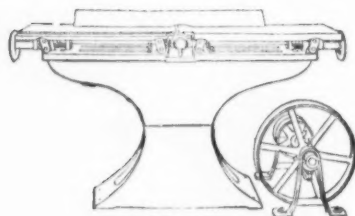


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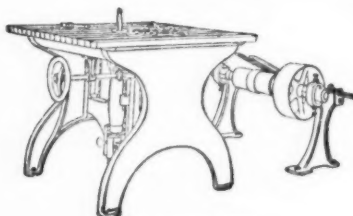


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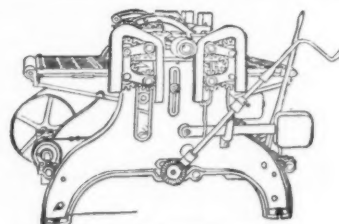
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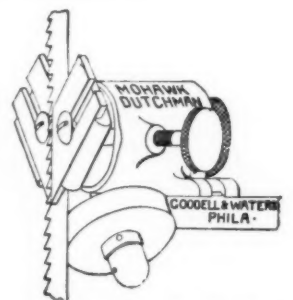
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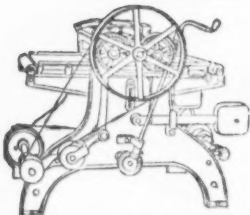
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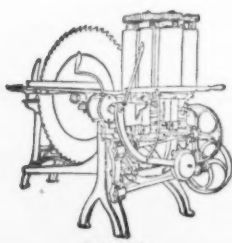
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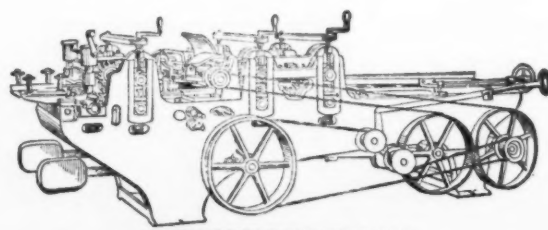
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SAWING."

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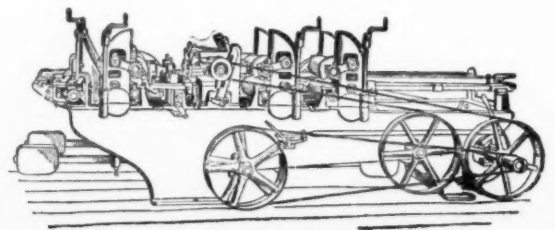
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Accurate.  
Durable.  
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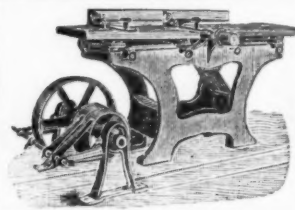
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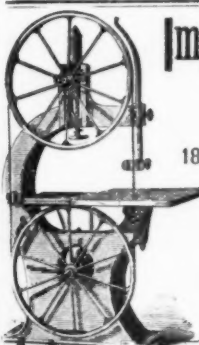
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For Saw and Planing Mills, &c.

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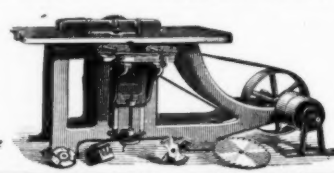
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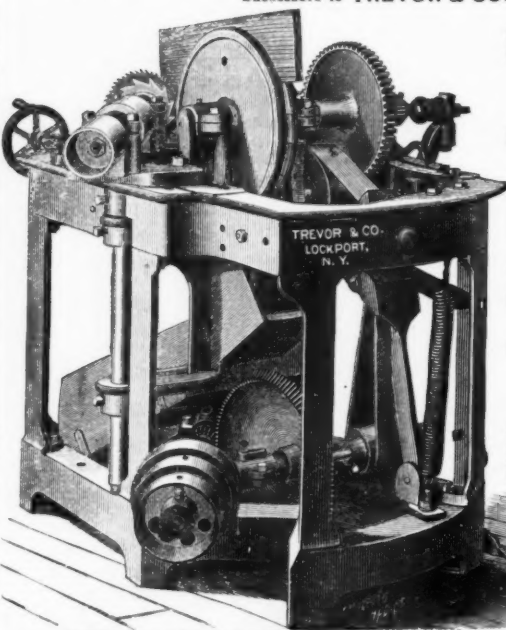
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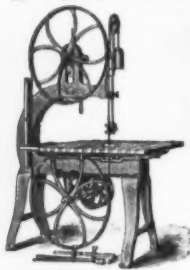
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SHAFTING,  
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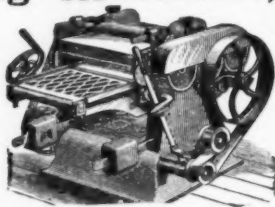
HANGERS,

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Write or Catalogue.



BAND SAW.



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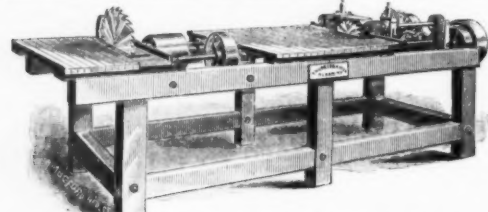
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Until you have written for full  
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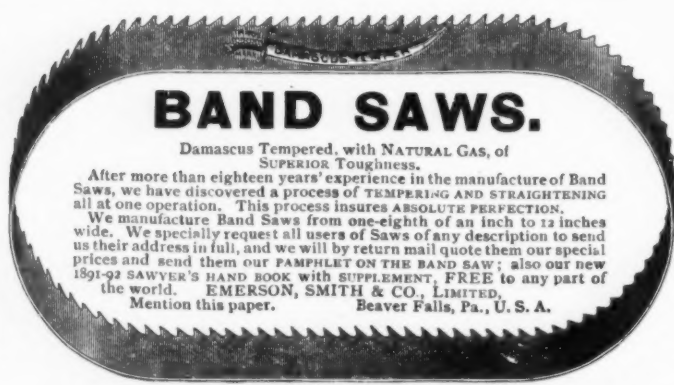
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Damascus Tempered, with NATURAL GAS, of  
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CIRCULAR SOLID SAWS, STANDARD INSERTED or CHISEL-PLANER TOOTHED SAWS, CLIPPER and LUMBERMAN'S CLIPPER SAWS are specialties with us. Our HAND-BOOK for SAWYERS and SUPPLEMENT gives full information, and we will esteem it a favor to be permitted to send them to any reader of this paper.

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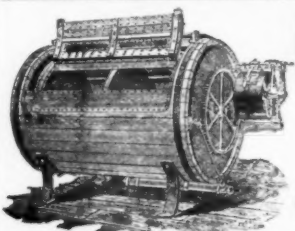
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HOTEL and INSTITUTION WORK CAREFULLY HANDLED.

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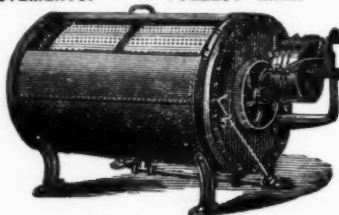
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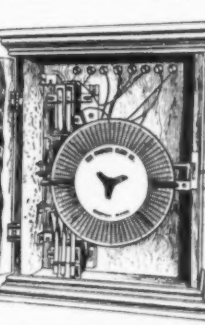
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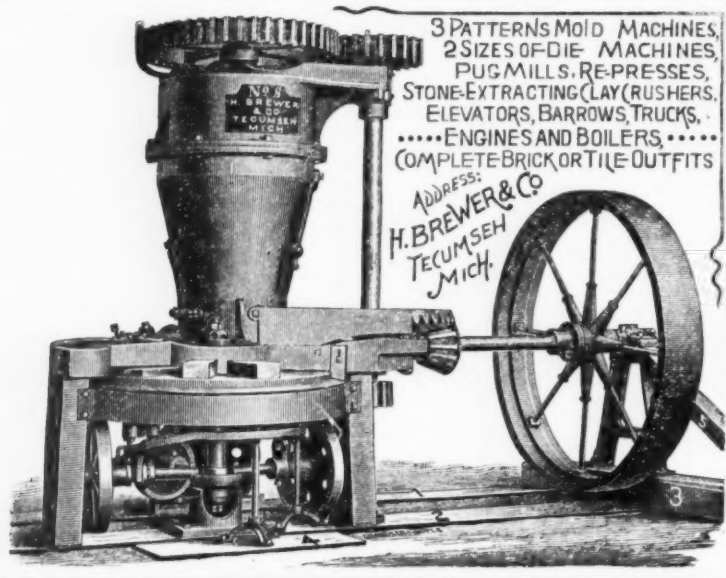
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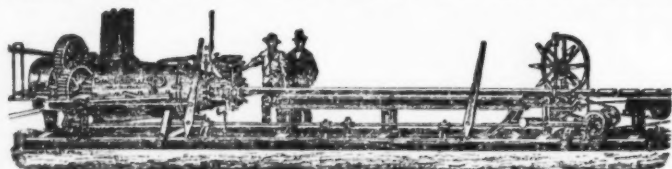
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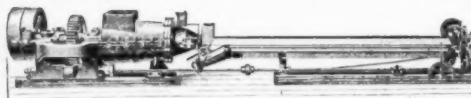
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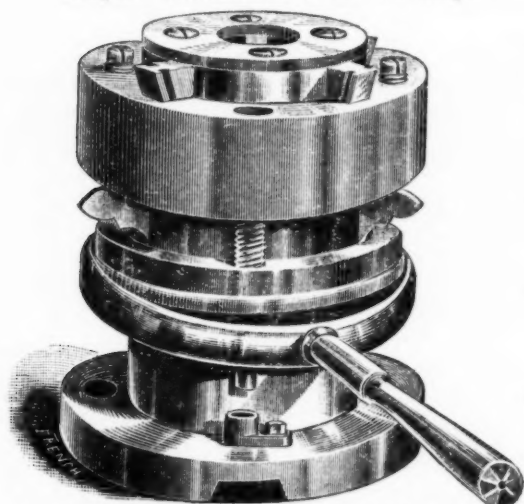
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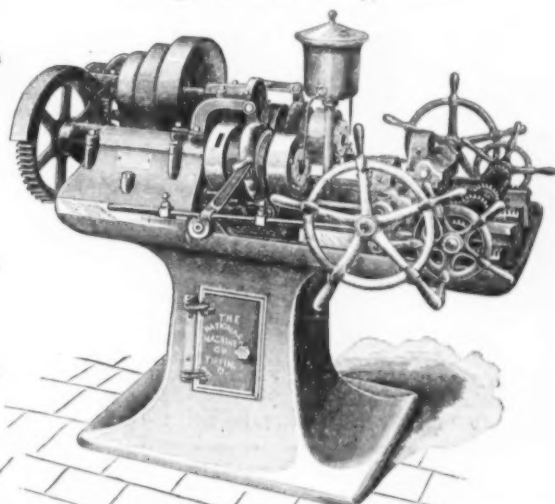
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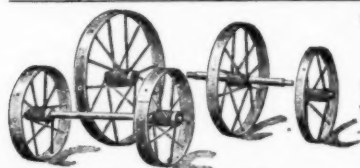
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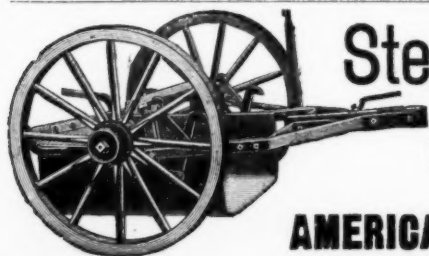
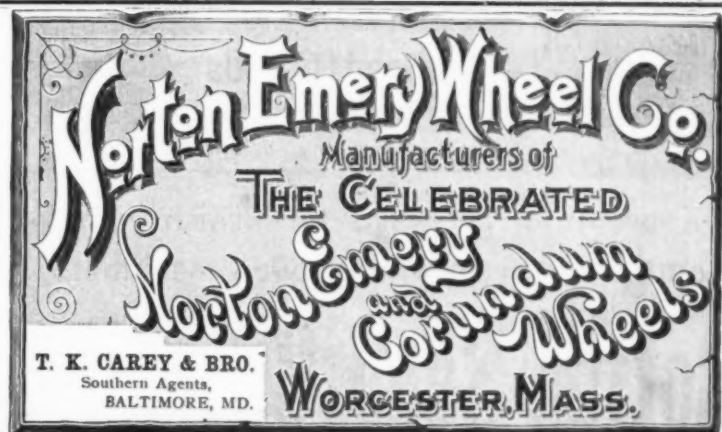
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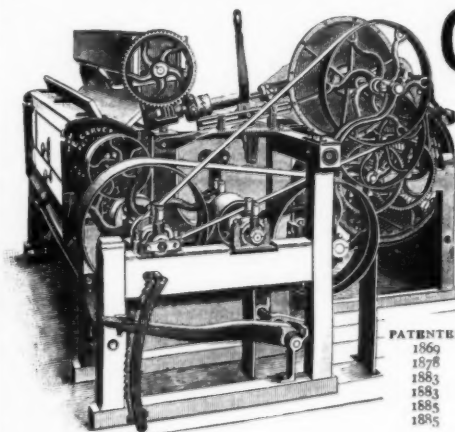
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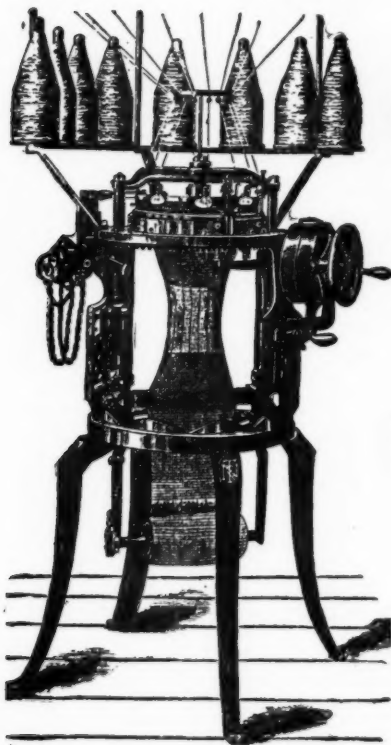
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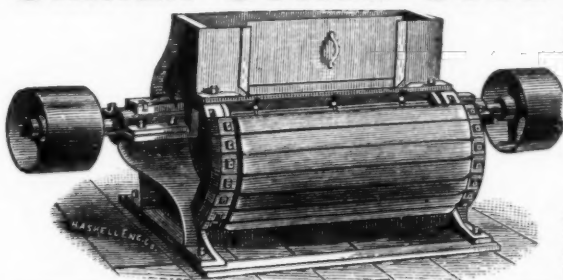
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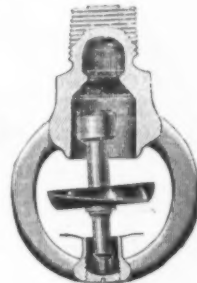
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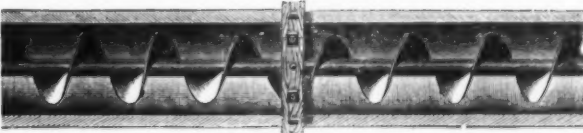
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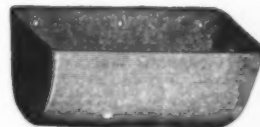
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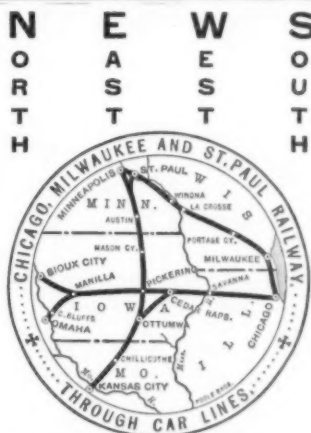
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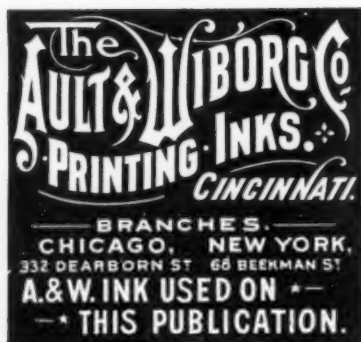
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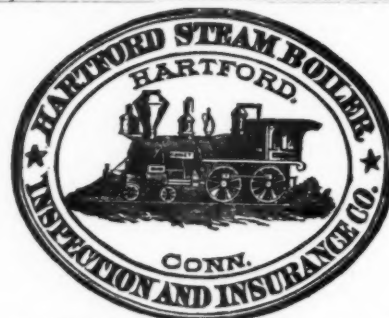
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**50,000 ACRES** of selected Coal Property secured, containing **SEVEN WORKABLE VEINS** above drainage, including the celebrated "Elkhorn" 7-ft. vein of coking coal, and a remarkable 33-in. vein of Cannel coal of the finest quality.

Every acre of this property contains, at a low estimate,  $28\frac{1}{4}$  feet of workable coals above drainage, worth on the low basis of 10 cents a ton royalty, **\$2,825** an acre.

This magnificent area of coal, containing such a wonderful deposit, quantity and quality considered, has been capitalized on the *bed-rock* basis of **\$10 an acre** for the coal, and **\$2** an acre for working capital. The stock of the Company has been divided into 50,000 shares, so that *each share represents an acre of coal*; par value of each share **\$12**.

### **\$2,825 for \$12. ABSOLUTELY NO RISK.**

This is certainly one of the most substantial enterprises ever offered to the public. The property of the Company cannot be lost. The management is always under the control of the stockholders, and mismanagement cannot be continued long enough to injure or affect the great value of its property. It is safer than bank stocks, for no cashier can carry it off to Canada. The coal is there in wonderful quantity and of the finest quality.

These coals have been demonstrated by the State Geological Survey of Kentucky, and by actual openings on the property of this Company.

The location of the property is admirable for transportation facilities and markets by rail or water, or both. Freight rates by rail will thus be maintained at a minimum by water competition.

**REMEMBER, Each \$12 Share of Stock Represents ONE ACRE of Coal Worth \$2,825 at 10 cents Royalty.**

### **TERMS OF SUBSCRIPTION.**

The stock of this splendid enterprise is sold at par—\$12 per share—payable as follows:

One dollar at the time of subscription, and eleven monthly payments of one dollar each, deferred payments commencing on the 10th day of the month following the month of subscription. These remarkably easy terms of subscription place this stock within the reach of all classes of savers and investors, and give them an opportunity to invest in a valuable coal property such as they have never had before.

**THE OPPORTUNITY OF A LIFE.**—Parties wishing to secure a block of this stock on the "ground floor," should apply at once and investigate thoroughly. This stock is certain to realize enormous profits. Its great intrinsic merit, its soundness, its absolute freedom from risk, the certainty of immense profit, and the easy terms of subscription, assure the entire subscription of the Company's capital in a very short time. Wishing to secure any of it, you must therefore act promptly. For prospectus and other particulars send your address to

**THE MONARCH COAL & COKE CO.**

KNOXVILLE, TENN.

**RELIABLE AGENTS WANTED.** Write for particulars, giving references.



EDWARD F. POWERS,  
President.

JOHN M. BROOKS,  
Manager.

# MIDDLESBOROUGH

Is located in Bell County, Kentucky, near the junction of the three States of Virginia, Kentucky and Tennessee with the Cumberland Mountain at a point where that mountain is most heavily freighted with its precious stores of Coking Coals, Iron Ores and Limestone.

It is 1,080 feet above sea-level. Its limits extend virtually from Cumberland Gap westward six miles, with a width of three and a-half to four miles north and south.

Through the tunnel at Cumberland Gap, towards which all railways for this region converge, communication is established with the seaboard and the entire system of railway and water transportation in America. Middlesborough also enjoys Postal, Telegraph, Express, Banking and Insurance Facilities with all the business world.



## MANUFACTURERS AND INVESTORS

Are invited to make a thorough investigation of the MINERAL AND TIMBER  
RESOURCES of

## MIDDLESBOROUGH, KY.

For in the origin and development of the town the primary cardinal points why a town should be built exist here to a pre-eminent degree.

Middlesborough occupies a POSITION second to none in the United States as regard coal and iron.

The Natural Resources are in such wonderful profusion and are so easy of development that it is only a question of time when a great Industrial and Manufacturing city will surely be built to consume the great Mineral and Timber Wealth which nature has deposited here with such a prodigal hand.

There are already built:

Two Large Iron Furnaces,  
An Immense Steel Plant,  
A Mammoth Tannery (in operation),  
A Brewery, Cold-Storage and Ice Manufacturing Plant,

A Belt Railroad, 23 miles long,  
Water Works, Electric-Light Plant,  
Foundries, Saw Mills, Planing Mills,  
Furniture and Bent Wood Factories,  
Telephone and Electric Street Car Systems

And other smaller plants of various descriptions.

## THE MIDDLESBOROUGH TOWN LANDS COMPANY,

MIDDLESBOROUGH, KY.

Address all communications to the Manager.



# THE NEWPORT NEWS BUILDING COMPANY.

Authorized Capital \$500,000.

Shares \$100 Each.

## OFFICERS.

A. S. BUFORD, Richmond, Va., **PRESIDENT.**  
 JOHN H. MONTAGUE, Richmond, Va., **VICE-PRESIDENT.**  
 SAMUEL S. ELAM, Richmond, Va., **SECRETARY.**  
 GEORGE A. SCHMELZ, Newport News, Va., **TREASURER.**  
 L. P. ROUTT, Richmond, Va., **GENERAL AGENT.**

## BOARD OF DIRECTORS.

A. S. BUFORD, Richmond, Va., ex-President Richmond & Danville Railroad Company.  
 JOHN H. MONTAGUE, Richmond, Va., President Merchants and Planters' Savings Bank.  
 E. A. CATLIN, Richmond, Va., President Security Savings Bank.  
 W. C. SEDDON, Baltimore, Md., of W. C. Seddon & Co., Bankers and Brokers.  
 HON. GEORGE D. WISE, Richmond, Va., Member of Congress Third Congressional District of Virginia.  
 GEORGE A. SCHMELZ, Newport News, Va., of Schmeltz Brothers, Bankers.  
 C. M. BRAXTON, Newport News, Va., Vice President First National Bank.

## THE NEWPORT NEWS BUILDING COMPANY.

The Newport News Building Company, duly incorporated under the laws of the State of Virginia, has secured three hundred beautiful residence lots at Newport News for the purpose of erecting buildings thereon and otherwise improving the property.

## FINANCIAL PLAN.

The financial plan of the company is as follows:

The capital stock is to be \$500,000, divided into shares of \$100 each.

Under the charter, when \$60 per share shall have been paid on each share of stock, no further assessments will be made, and full-paid certificates will be issued to the holders thereof.

The payments for stock are to be as follows:

\$5 per share upon date of subscription.  
 \$5 per share in one month.  
 \$5 per share in two months.  
 \$5 per share in three months.  
 \$5 per share in four months.  
 \$5 per share in six months.  
 \$5 per share in eight months.  
 \$5 per share in ten months.  
 \$5 per share in twelve months.  
 \$5 per share in fourteen months.  
 \$5 per share in sixteen months.  
 \$5 per share in eighteen months.

Building companies doing business upon this plan have paid dividends ranging from 12 to 20 per cent per annum. It is confidently believed that with the superior advantages possessed by this company it can do equally as well.

## REDEMPTION OF STOCK.

Stock, when fully paid in accordance with this prospectus, will be received by the company in payment for houses or lots at \$65 per share, being a premium of \$5 per share over cost of same.

## BEAUTIFUL LOCATION.

The company's property lies very near Newport News and between Newport News and Hampton.

The Chesapeake & Ohio Railway runs near it, and the electric line connecting Newport News, Hampton and Old Point places it within a few minute's ride of the business centre of the former city. No lot will be over five blocks from the electric line.

Every lot commands a view of Hampton Roads, and it can be honestly said that no property in the Newport News section is more desirable for residence purposes, for it is right in the line of all the valuable and fashionable development which is now attracting so much attention.

## WONDERFUL DEVELOPMENT.

When it is remembered that the growth of Newport News is rapid and substantial (it has now a population of about 8,000); that the wages paid here are better than in almost any other city in the country; that the finest dry-dock and ship-building works in the world are here; that a great number of other important industries are in operation, and that others are projected; that a high class of skilled workmen find ready employment, and that such workmen are coming in by hundreds; that one of the greatest trunk lines in the United States has its deep-water terminus here; that northern and foreign capital is pouring into this section by the million, it is not surprising that the real estate business and the building trades are more active here than in any other new city in the country.

## DEMAND FOR HOUSES.

A lively demand for new houses and the phenomenal success of building companies are among the causes that brought about the organization of this company.

The property of the company has been secured at a comparatively low figure—prices having been agreed upon before the recent advances in real estate—and it is believed the company will not only make money, but big money. Indeed, no such solid and attractive scheme of this character has been organized in recent times. If the company had a house on every one of its lots to-day there would be tenants or purchasers for all of them.

## MONTHLY INSTALLMENTS.

Houses built by the company will be sold upon easy monthly installments or otherwise.

For further information apply to

THE NEWPORT NEWS BUILDING COMPANY,

821 East Main Street, Richmond, Va.

FILL UP the following BLANK and forward, with \$5 per share, to either the Secretary or General Agent at Richmond, Va.

I, \_\_\_\_\_ of \_\_\_\_\_

State of \_\_\_\_\_ do hereby subscribe to

Shares of the Capital Stock of THE NEWPORT NEWS BUILDING CO., on the terms and conditions set forth in the printed Prospectus of said Company, receipt of a copy of which I do hereby acknowledge, and the same is hereby made the basis and a part of this Contract between me and said Company.

This \_\_\_\_\_ day of \_\_\_\_\_ 189

Subscriber.

No. of Street \_\_\_\_\_

**GOOD AGENTS WANTED.**



# As A LOCATION for Manufactures

Of Iron and Wood and for General Industrial and  
Business Enterprises,

## FRONT ROYAL, VA.

INVITES INVESTIGATION.

---

Its location, at the junction of the Norfolk & Western Railroad (Shenandoah Valley line) and the Richmond & Danville's branch, give it excellent transportation facilities. It is only a few hours' ride distant from Washington.

The Norfolk & Western's direct line to Washington will be built from Front Royal.

---

*There is no Finer Agricultural Country in the World than the Famed Shenandoah Valley, in which Front Royal is Located.*

---

A WIDE RIVER WITH SWIFT CURRENT FURNISHES WATER POWER  
AND MAKES DRAINAGE PERFECT.

---

Front Royal is a Prosperous Town, with an Extensive Mercantile Business  
and Many Manufacturing Enterprises in Operation and  
Under Construction.

---

INVESTIGATION OF ITS ADVANTAGES IS INVITED BY THE

Front Royal--Riverton Improvement Company,

FRONT ROYAL, VIRGINIA.



# NORTH WILKESBORO,

## NORTH CAROLINA,

One of the Conspicuous Successes of the Year in Town Building.  
Presents the Following Record:

Population March 4, 1891, actual count, 48.

Population March 4, 1892, actual count, 348.

Gain in one year 625 per cent.

Townsite purchased November 11, 1890; act of incorporation passed by the Legislature, March 4, 1891; first lot sold at private sale, May 12, 1891. Within the first year of its existence ten miles of streets have been graded, and \$22,000 spent in public improvements. Where prior to March 4, 1891, there was only a farm settlement without pretensions to being even a village, there is to-day a thriving, busy, growing, trading and manufacturing center, with

A Large Well-Kept Hotel,  
The Bank of North Wilkesboro, \$40,000 Capital,  
A large Livery and Sale Stable,  
Two Large Wholesale Stores,  
One Hardware Store,  
One Furniture Store,  
Ten General Merchandise Stores,  
Three Saw Mills, Sash and Blind Factories,  
One Foundry and Machine Shop,  
A Handsome, Well-Edited, Home Print Newspaper, The North Wilkesboro News,  
One School,  
Two Churches Under Way,

Two Brick Yards in operation, and a number of other enterprises practically secured.

Arrangements are about completed for a Woolen Mill.

A large iron front brick block, containing Bank Building, two Store Rooms, Opera House, and Printing Office; A graded School Building and an Iron Bridge across the Yadkin River, in the Eastern part of town, will be completed during the spring and summer.

Turnpike roads to Tennessee and Virginia are about completed; county roads leading into town are being improved and numerous good new ones built, with the intention of making this the center for all the wagon trade of this section.

A tobacco warehouse for the sale of the high grade leaf of this district will be built during the summer, so as to give a home market for the tobacco crop that will be grown this year.

*Compare this record with that of any other new town you have heard of during the past dull season.*

## NORTH WILKESBORO,

Is 75 miles west of Winston-Salem, at the present terminus of the Northwestern North Carolina Railroad, which when ultimately completed to Bristol, Tenn., will give the shortest route between Norfolk and Cincinnati. North Wilkesboro is the most important trading point between Winston-Salem and Bristol, and is in the center of the great undeveloped mineral and timber district of Northwestern North Carolina, being by United States Postal Map on an air line 75 miles southeast of Bristol, 45 miles east of Cranberry, N. C., 40 miles north of Statesville, 45 miles northeast of Hickory, 90 miles northeast of Asheville, 45 miles southeast of Mt. Airy, and 80 miles south of the Norfolk & Western Railroad, in the valley of the Yadkin, between the Brushy Mountains on the South and the Blue Ridge on the North. Climate, healthfulness, water, drainage and location unsurpassed by any town in North Carolina.

The townsite consists of 1,088 acres, located, by the way on a farm originally owned by General John B. Gordon's grandfather. The first public auction sale of lots was held December 2, 1891, and 188 lots were sold. Purchasers have in many cases been able to resell at a handsome profit. The company has sold 50 lots at private sale since then, on many of which houses are now being erected. It is a significant fact that among the business buildings erected a large per cent. are substantial brick structures, while for architectural beauty and cost many of the residences are much superior to those usually found in a town so young.

At the second auction sale, May 11th, 1892, 35 business lots and 44 residence lots sold for \$16,490, an average of \$8.35 per front foot, which is \$2.53 per front foot (or 44 per cent.) more than the average at the sale last December, which was the best sale made in North Carolina during last year. Since the sale, a contract has been closed for the location of another large saw mill, planing mill, sash, door and blind factory combined, which will do a large shipping business. A contract is closed for the location of extract works with a capital stock of \$300,000. The plant will cost \$125,000 and will cover six acres of land. Twelve families from the North will move down. The company will erect a large electric light plant in connection with the extract works. North Wilkesboro will get there and will not be long doing so.

Through the townsite runs a stratum of serpentine stone, 200 feet in width, and also a bed of iron ore equal in quality to that of Cranberry. The Town Company also owns 4,100 acres of mineral, granite and timber lands in Wilkes County. It is probable that the work of developing the great mineral and timber interests of the section will be commenced in a short time, and on an extensive scale.

*Sites will be donated and stock subscribed to such manufacturing enterprises as may be advantageously located here.*

The policy of the Company is a most liberal one in this respect, it being determined to aid all legitimate enterprises to any reasonable extent. There are 328 miles of water courses within the borders of Wilkes County, furnishing to the vicinity of North Wilkesboro a water power as great as Fall River. The climate, while not moist, is neither harsh nor dry, and is especially suitable to the spinning of fine cotton yarns, such as cannot be made in the extreme South or North. There is also a fine opportunity here for bleacheries, to the establishment of which at Southern points there is a tendency at present. As they can't go where sluggish streams, impregnated with vegetable matter, abound, the quick flowing streams of clear mountain water, so numerous about North Wilkesboro, afford everything desired. Numerous other industries will do well at North Wilkesboro, and will be most substantially encouraged to locate there.

Capitalists, Home Seekers, Health Seekers, Manufacturers of wood and iron, and many other industrial workers may well investigate North Wilkesboro's advantages.

The above-described townsite and other property belongs to the Winston Land & Improvement Co., which was chartered by act of Legislature, session of 1887; ratified March 4, 1887, chapter 82. Authorized capital \$1,000,000. Present capital stock \$125,000, all subscribed and paid up.

**OFFICERS**—G. W. HINSHAW, President, of Hinshaw & Medearis, Wholesale Merchants; Vice-President People's National Bank, Winston, N. C. DR. W. L. BROWN, Vice-President, of Brown Brothers, Tobacco Manufacturers, Winston, N. C. W. F. TROGDON, Secretary and Treasurer, North Wilkesboro, N. C.

**BOARD OF DIRECTORS**—GEO. W. HINSHAW, Winston, N. C. MAJ. CHANNING M. BOLTON, Chief Engineer Richmond & Danville Railroad, Washington, D. C. P. H. HANES, of P. H. Hanes & Co., Tobacco Manufacturers, Winston, N. C. COL. J. M. WINSTEAD, Cashier Piedmont Bank, Greensboro, N. C., and President H. P. Scales Tobacco Co., Atlanta, Ga. A. A. FINLEY, ESQ., Mayor of North Wilkesboro, N. C.

**ATTORNEYS**—T. B. FINLEY, ESQ., North Wilkesboro, N. C. HON. C. B. WATSON, Winston, N. C. HON. J. C. BUXTON, President First National Bank, Winston, N. C. HON. W. W. BARBER, Wilkesboro, N. C.

PLATS, PRICES AND ANY DESIRED INFORMATION PROMPTLY FURNISHED ON APPLICATION TO

W. F. TROGDON, Secretary and Treasurer,

NORTH WILKESBORO, N. C.





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Cheapest and Best Automatic Steam Vacuum Pump. Handles DIRTY and GRITTY LIQUIDS without Oil or Care. Simplest and most durable Pump made, as partial removal of two bolts makes every valve readily accessible. Pumping Plants for Contractors, Irrigation, Water Works, Railroads, Mining and General Hydraulic Purposes. Send for Circulars.

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PUMPS ANY KIND OF LIQUID. Does not clog, freeze or get out of order. Always ready. All brass. Every Pump Guaranteed. 10 sizes. Capacity 100 to 10,000 gallons per hour. Prices \$7 and upwards. For full information write to The VAN DUZEN & TIFT CO. (PUMP DEPARTMENT) CINCINNATI, O.

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When furnished with Graphite Bearings, the GEM WIND ENGINE requires no oiling or greasing of towers, no blined or frail-jointed towers, and practically no attention, yet is guaranteed more durable than other Mills that are sold. Truly a GEM, and worth its weight in gold. The GEM STEEL TOWER is made triangular in shape, the corners and girts being of angle steel; the braces are steel rods, each of which can be drawn up, independent of the other. It combines beauty, strength, durability and simplicity to the greatest degree, and is much more easily erected than a tower made of wood. We also manufacture the celebrated HALLADAY Standard Pumping and Geared Wind Mills, the Standard VANELESS and U. S. SOLID WHEEL Wind Mills, Pumps, Tanks, HORSE HAY TOOLS, and the most complete line of WIND MILL SPECIALTIES.

Send for catalogue. Address: U. S. WIND ENGINE & PUMP CO., BATAVIA, ILL., U. S. A. BRANCH OFFICES: Omaha, Neb.; Kansas City, Mo. DEPOTS: Boston, Mass.; Ft. Worth, Tex.

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At the following Places:

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Washington, Ind.,	20X100
Beaver Dam, Wis.,	20X84
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Homer, N. Y.,	25X40
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Marshall, Mich.,	20X100
Hamburg, N. Y.,	16X125
Canton, N. Y.,	30X72

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It gives on either a Vertical or Horizontal Shaft more power for its price yields a greater percentage of water used, either with full or part gate drawn, and is the simplest constructed and best finished Wheel ever offered for sale. Send for catalogue to BURNHAM BROS. YORK, PA.

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TUBING, CASING, BOILERS, ENGINES, DRILLING RIGS, TOOLS, ROPE, and all other appliances necessary for drilling Oil, Gas and Water

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For Railroads, Ice Factories and Village Water Works.

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Give depth and diameter of your well and amount of water wanted, and write for estimates and prices.

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Best in Market. Quick work and no failures. Send for catalogue.

RUST WELL WORKS, ITHACA, N. Y.

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### WELL DRILLING MACHINERY,

MANUFACTURED BY WILLIAMS BROTHERS, ITHACA, N. Y.

Mounted and on Sills, for deep or shallow wells, with steam or horse power.

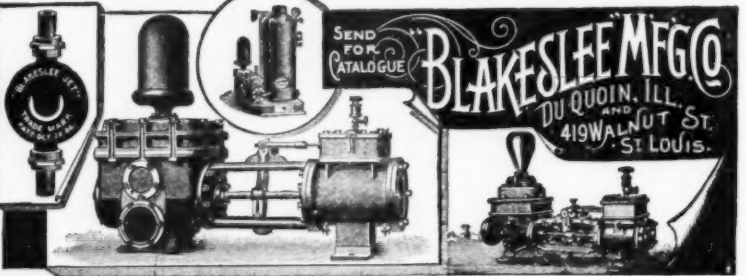
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ADDRESS Williams Brothers ITHACA, N. Y.

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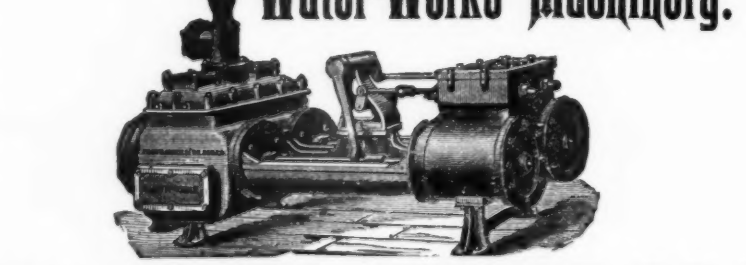
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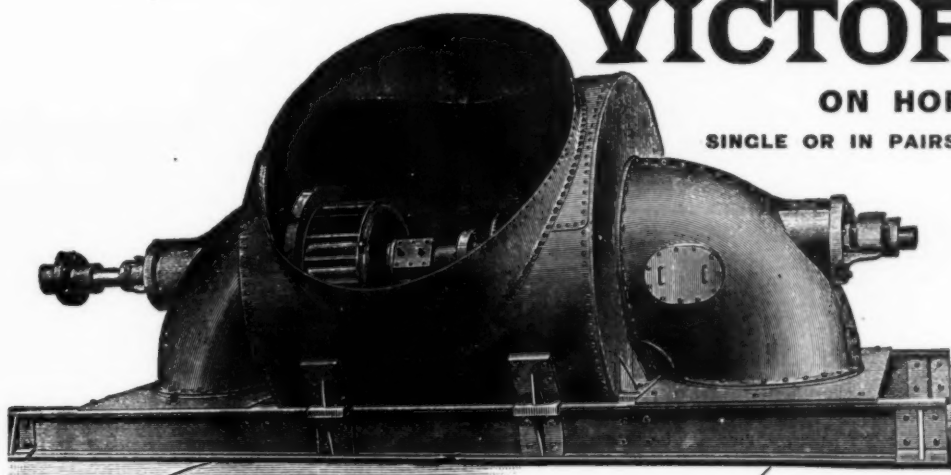
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Actual Test of the VICTOR in Testing Flume, Holyoke, Mass.

Size of Wheel.	Head in Ft.	Horse Power.	Per Ct. Useful Effect.
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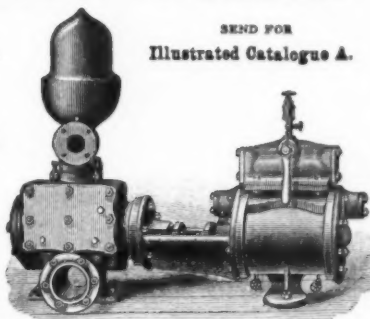


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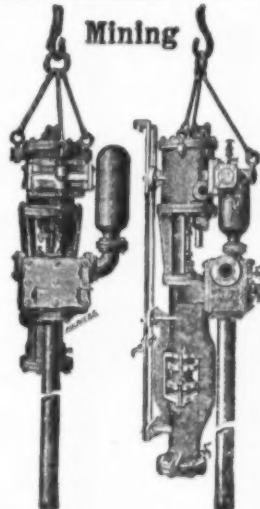
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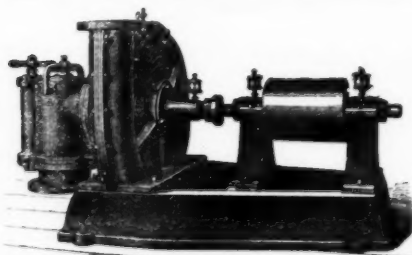
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17,000 in Use.

Capacity 40 to 50,000 Gallons Per Minute.

ALL SIZES IN STOCK. Guaranteed superior to any other make. Our special Dredging Pumps will pass solids 10 in. in diameter. Our Sand Pumps can be seen running in St. Louis, Kansas City, Chattanooga, Memphis, Decatur, Louisville and many parts of the South.

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STRONG, DURABLE, ECONOMICAL, SIMPLE.

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ON VERTICAL AND HORIZONTAL SHAFTS.

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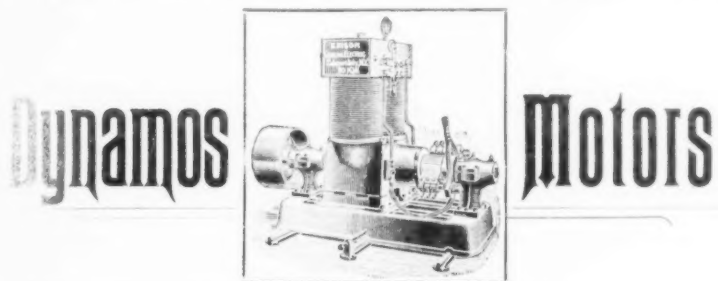








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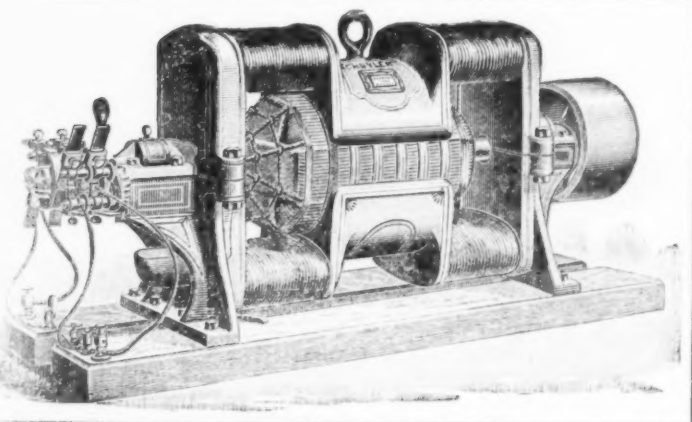
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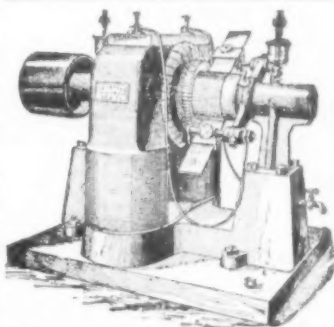
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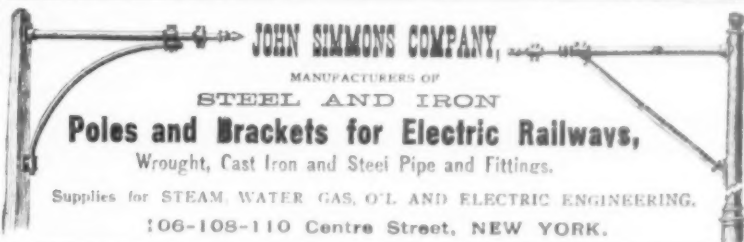
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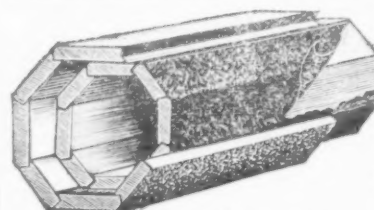
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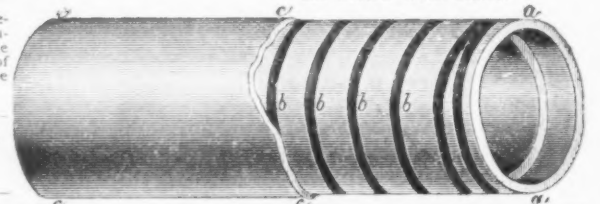
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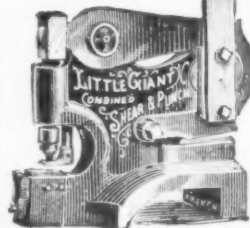
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